Concept 1-1
Adaptation and Survival

Remember that:

Penguins' feet end with webbed toes with strong claws. They keep their feet from freezing as follows:

* The penguin's heating system is very powerful due to its body covered in warm, waterproof feathers, and under its skin is insulating fat.
* So its body is always very warm, it gets rid of this heat through its feet and beak.
* When the sun is shining in the daytime, penguins tend to move closer to the sun to warm their bodies (Behavioral Adaptation).

A lizard can maintain its internal body temperature as follows:

* When the temperature falls down, the color of the lizard's skin becomes darker and it is able to absorb heat (Structural Adaptation).
* When the temperature rises, the lizard's skin becomes lighter in color; it resorts to its shady and damp burrows during the day to avoid the heat of the sun (Behavioral Adaptation).

Ways of adaptation of some animals in order to survive:

* Thick fur (a structural adaptation) that covers the body to feel warm, like an arctic fox.
* Long ears (a structural adaptation) of the fennec fox, which works to maintain its body temperature.
* Hiding in caves under the snow (a behavioral adaptation) to keep the body warm in the cold polar regions, such as: polar bears, grizzly bears, and Alaskan brown bears.
* Hiding in burrows and among rocks and sand in the desert (a behavioral adaptation) to keep the body cool, such as: jerboa and some types of insects.

1 Choose the correct answer from the given answers:

1. Among the problems that affect the survival of living organisms is the ..... .
   a. temperature change
   b. scarcity of water
   c. availability of shelter and food or lack of them
   d. all of the above
2. A ..... belongs to desert animals.
   a. fennec fox
   b. camel
   c. lion
   d. a and b together
3. The bat sleeps in the ..... position.
   a. upright
   b. upside-down
   c. inclined
   d. flying
4. The bat depends on ..... in hunting its prey.
   a. echo
   b. refraction
   c. diffraction
   d. interference
5. The desert lizard protects its body from heat and drought by ..... .
   a. hiding in burrows
   b. being active during the daytime
   c. panting
   d. running
6. One of the characteristics that enables an organism to survive and reproduce is ..... .
   a. balancing
   b. adaptation
   c. extinction
   d. hiding
7. Fennec foxes resort to panting ..... .
   a. to increase their sense of hearing
   b. to maintain their body temperature
   c. for reproduction
   d. for fast running

Answers 1:

1. d	2. d	3. b	4. a
5. a	6. b	7. b	

8. The fennec fox has large ears that work on ..... .
   a. cooling its body
   b. increasing the sense of hearing
   c. protecting it from the sun
   d. a and b together
9. The bull shark resorts to a strategy of camouflage called ..... .
   a. Graph
   b. Color variation
   c. Feeding elasticity
   d. Countershading
10. Agama lizard and panther chameleon belong to ..... reptiles.
   a. cold-blooded
   b. warm-blooded
   c. solid-blooded
   d.boiled-blooded
11. Types of adaptation include ..... adaptation(s).
   a. structural
   b. functional
   c. behavioral
   d. a and c together
12. There is a layer of ..... underneath the polar bear's skin to keep its body warm.
   a. fats
   b. proteins
   c. sugars
   d. carbohydrates
13. The color of the fur of the ..... changes from gray to bright white in winter.
   a. fennec fox
   b. arctic fox
   c. fish cat
   d. bat
14. Most sharks live in ..... .
   a. swamps
   b. fresh water
   c. salty water
   d. ponds
15. Acacia leaves secrete a ..... substance that makes it taste bad.
   a. nutritious
   b. sugary
   c. salty
   d. poisonous

Answers:

8. d	9. d	10. a	11. d
12. a	13. b	14. c	15. d

16. The length of the kapok tree exceeds ..... m.

a. 35 b. 70

c. 15 d. 22

17. Behavioral adaptations of the fennec fox include its ..... .

a. big ears b. panting

c. fur color d. sharp teeth

18. Behavioral adaptations of the arctic fox include ..... .

a. its short legs b. its thick fur

c. its fur color change d. it hiding in warm burrows

19. The panther chameleon can move its eyes in ..... .

a. one direction b. a perpendicular direction

c. two different directions at the same time

d. a vertical direction

20. The importance of the leaves of the water lily plant is ..... .

a. absorbing the sunlight b. absorbing water

c. steadfastness in water

d. preventing fish from reaching the plant

21. The alimentary canal begins with the opening of the ..... and ends with the opening of the ..... respectively.

a. mouth, intestine b. intestine, anus

c. mouth, anus d. anus, mouth

22. Human obtains the required ..... for the body's systems functions.

a. energy b. water

c. sugar d. minerals

Answers:

16. b	17. b	18. d	19. c
20. a	21. c	22. a	

23. The structural adaptations of the water lily plant include the ..... .
    a. taproots
    b. transverse roots
    c. wide leaves
    d. all the previous
24. Some plants grow taller to get ..... .
    a. light
    b. water
    c. salts
    d. dissolved sugar
25. The ..... system breaks up the food to make use of it.
    a. circulatory
    b. respiratory
    c. digestive
    d. nervous
26. The process of digesting food begins in the ..... .
    a. small intestine
    b. large intestine
    c. esophagus
    d. mouth
27. The stomach of cows contains ..... .
    a. four chambers
    b. one chamber
    c. three chambers
    d. two chambers
28. Returning back the food from the second stomach to the mouth for chewing again is called the ..... .
    a. approach
    b. hiding
    c. rumination
    d. feeding
29. The true stomach in cows is the ..... chamber.
    a. first
    b. second
    c. third
    d. fourth
30. The third chamber in a cow's stomach is called the ..... .
    a. hood
    b. rumen
    c. mother of mother of gyrus
    d. rennet

Answers:

23. c	24. a	25. c	26. d
27. a	28. c	29. d	30. c

31. The first and second chambers in cows are called ..... , respectively.

a. the hood and the real

b. the rumen and the hood

d. the mother of the gyrus and the hood

d. the mother of the gyrus and the rumen

32. Dogs' teeth are distinguished with ..... for tearing meat.

a. pointed sharp edges

b. front extended shape

c. sharp incisors

d. all the previous

33. Cows have ..... teeth that are suitable for eating grass.

a. pointed

b. flat

c. sharp

d. extended

34. The diaphragm contracts and descends in the process of ..... .

a. inhalation

b. exhalation

c. walking

d. sleeping

35. The air coming out of the lungs contains ..... gas during the exhalation process.

a. oxygen

b. carbon dioxide

c. nitrogen

d. hydrogen

36. Fish breathe oxygen dissolved in water by their ..... .

a. lungs

b. trachea

c. gills

d. skin

Answers:

31. b	32. a	33. b	34. a
35. b	36. c		

2 Complete the following:

1. The fennec fox has a big ear ..... to increase the sense of hearing.
2. The bat is one of the ..... animals and it sleeps in a/an ..... position.
3. Bats depend on ..... phenomenon to catch the preys.
4. The polar bear has a dense ..... and a layer of fat under its skin to warm its body.
5. The ear of the fennec fox increases the sense of ..... and it regulates the ..... of its body.
6. The polar bear has ..... colored fur, while the forest bear has ..... colored fur.
7. The color of the arctic fox fur changes from the ..... color to the ..... color to hide among the snow.
8. Polar bear feeds on ..... and ..... .
9. There are two types of adaptation, they are ..... and ..... .
10. The big ears in the fennec fox are a ..... adaptation, while the panting is a ..... adaptation.
11. Foxes eat all kinds of food. This is considered a ..... adaptation.
12. Bull sharks resort to a strategy of camouflage called ..... .

Answers 2:

1. pinna
2. nocturnal, upside-down
3. echolocation
4. fur
5. hearing, temperature
6. white, black or brown
7. grey, shiny white
8. dead whales, fish
9. structural, behavioral adaptations
10. structural, behavioral
11. behavioral
12. Countershading

13. The panther chameleon lives in the ..... habitat, while the Agama lizard lives in the ..... habitat.
14. Reptiles are ..... blooded animals.
15. The paws of the panther chameleon resemble the ..... letter during movement.
16. The ..... tree and the ..... tree belong to the giant trees.
17. The buttress roots in kapok trees are a ..... adaptation.
18. The mangrove tree grows in the ..... habitat, while the water lily grows in the ..... habitat.
19. The roots of the mangrove help it to hold on in the ....., while the roots of the palm help it to hold on in the ..... .
20. The alimentary canal begins with the opening of the ..... and ends with the opening of the ..... .
21. The ..... enzyme and the ..... enzyme are poured on the liquid food inside the small intestine and they decompose food into nutrients.
22. The human body obtains ..... from the nutrients necessary for the functioning of the body's systems.
23. The digestive system of cows contains ..... chambers.

Answers:

13. dry desert, forest
14. cold
15. V
16. acacia, kapok
17. structural
18. salty water, swamps
19. strong waves, strong winds
20. mouth, anus
21. liver, pancreas
22. energy
23. four

24. The first stomach in cows is called ....., the second stomach is called ....., the third stomach is called ..... and the fourth stomach is called ..... .
25. Teeth in cattle are ..... to fit the grass they eat, while dogs' teeth are ..... to fit the meat they eat.
26. The breathing process includes ..... and ..... .
27. During inhalation, the ..... contracts downwards, causing widening of the ..... pushing the oxygen-rich air into the lungs.
28. Fish breathe through their ....., while humans breathe through their ..... .
29. ..... is a disease that attacks human if he breathes polluted air.
30. Amphibians breathe through their ..... and .....
31. The ..... is an example of the structural adaptation of mangrove plant.
32. The undigested food comes out of the human body through the ..... opening.
33. The bull shark has a ..... back and a ..... belly to sneak up on the prey.
34. ..... and ..... are examples of behavioral adaptations of living organisms.
35. Food is absorbed into the walls of the ..... that are rich in ..... .

Answers:

24. hood, rumen, mother of gyrus, actual
25. flat, sharp
26. inhalation, exhalation
27. diaphragm, chest cavity
28. gills, lungs
29. Asthma
30. lungs ,skin
31. strong long roots
32. anus
33. black, white
34. Hiding in caves, panting
35. small intestine, tiny blood vessels

3 Write the scientific term:

1. A change that takes place over time and helps animals to survive.
(.....)
2. A change that occurs inside the animal's body and helps it survive.
(.....)
3. A change in the behavior of an animal or the behavior of a group of animals.
(.....)
4. Egyptian mongoose moving from one place to another searching for food and hunting in different environments and eating different types of food.
(.....)
5. The camouflage strategy used by the bull shark.
(.....)
6. A group of organs in the body of the living organism that perform one function.
(.....)
7. Breathing air that is rich in oxygen into the lungs.
(.....)
8. The exit of air carrying carbon dioxide from the lungs to outside the human body.
(.....)
9. The changes taking place in the environment over the years and decades.
(.....)

Answers 3:

1. Adaptation
2. Structural adaptation
3. Behavioral adaptation
4. Foraging
5. Countershading
6. System
7. Inhalation
8. Exhalation
9. Slow environmental changes

10. The fast changes that occur in the environment over several hours or days.

(.....)

11. A system that is responsible for breaking down food and absorbing nutrients from it.

(.....)

12. A disease attacking the chest as a result of human exposure to large amounts of air pollutants.

(.....)

13. One of the structures inside the fish's body. It is responsible for breathing and extracting oxygen from the water.

(.....)

14. The gas that is expelled outside the human body as a result of the exhalation process.

(.....)

15. A large tree that grows in the Savannah and can withstand many months of drought.

(.....)

16. A tree found in the Amazon rainforest. It is provided with buttress roots and hand-shaped leaves.

(.....)

17. A type of reptiles whose feet are in the shape of the V letter.

(.....)

Answers:

10. Fast environmental changes
11. The digestive system
12. Asthma
13. Gills
14. Carbon dioxide
15. Acacia tree
16. Kapok tree
17. The panther chameleon

4 Put a (✓) or a (✗) for the following statements:

1. To increase the sense of hearing and to cool the body down, the fennec fox has a large ear pinna. ( )
2. Living organisms adapt over time to the environmental changes. ( )
3. The bat sleeps in an upright position to see its preys. ( )
4. Bats help in the plant pollination process. ( )
5. During their flight, bats produce sound waves that bounce back to them to locate their preys. ( )
6. Desert lizards resort to hide in the shady burrows. This is considered a structural adaptation. ( )
7. Panting helps some animals to cool down their bodies. ( )
8. Penguins live in hot tropical forests. ( )
9. The feet of the penguin are warm because they are covered with thick feathers. ( )
10. Polar bears have thick fur and a layer of fat under their skin to keep them warm. ( )
11. There are two types of adaptation, structural and functional adaptations. ( )
12. Both the fennec fox and the arctic fox live in a dry desert climate. ( )
13. Resorting of the fennec fox to panting to cool its body is considered a behavioral adaptation. ( )
14. One of the structural adaptations of the arctic fox is to hide inside the warm burrows. ( )

Answers 4:

1. ✓	2. ✓	3. ✗	4. ✓
5. ✓	6. ✗	7. ✓	8. ✗
9. ✗	10. ✓	11. ✗	12. ✓
13. ✓	14. ✗		

15. The bull shark has a black back and white belly, which helps it to hide. ( )
16. The Agama lizard lives in dry deserts, while the panther chameleon lives in the tropical forests. ( )
17. Lizards are a type of cold-blooded reptiles. ( )
18. The shape of the feet of the panther chameleon is considered a structural adaptation. ( )
19. The eyes of the panther chameleon move in two different directions at the same time. ( )
20. The panther chameleon has no defense, but it tries to look fierce in front of its predator. ( )
21. The root of the acacia tree extends deep into the ground 70 meters to reach the underground water. ( )
22. The acacia tree stores water in its leaves to be consumed when needed. ( )
23. Acacia tree leaves produce poisons that taste terrible when eaten by animals. ( )
24. The buttress roots of the kapok tree extend to a short distance below the earth's surface. They grow upwards until reaching the tree trunk. ( )
25. The long and strong roots of the mangrove tree is considered a structural adaptation. ( )
26. The human stomach breaks the food down and turns it into a liquid with the help of the digestive enzymes. ( )

Answers:

15. ✓	16. ✓	17. ✓	18. ✓
19. ✓	20. ✓	21. ✗	22. ✗
23. ✓	24. ✓	25. ✓	26. ✓

27. The digestive system of humans, cows and dogs begins at the anus and ends with the mouth. ( )
28. The dog's digestive system has four stomachs that enable it to digest protein. ( )
29. Teeth in cows are flat, while the dog has pointed canines. ( )
30. The rib cage expands upwards during inhalation, while the diaphragm contracts. ( )
31. Carbon dioxide gas is expelled with the air out of the body in the process of exhalation. ( )
32. Fish breathe oxygen through the lungs. ( )
33. Environmental changes vary between fast and slow. ( )
34. Amphibians breathe by both their lungs and skin outside and inside the water. ( )
35. Amphibians live in moist habitats. ( )

Answers:

27. ✗	28. ✗	29. ✓	30. ✗
31. ✓	32. ✗	33. ✓	34. ✓
35. ✓			

5 Write the scientific reason:

1. Fennec fox has a very large pinna.

.....

.....

2. Bats can hunt their prey in the dark.

.....

.....

3. The desert lizard keeps its body cool from the desert heat.

.....

.....

4. The fennec fox resorts to panting.

.....

.....

5. The penguin keeps its feet warm despite standing in the snow.

.....

.....

Answers 5:

1. To increase its sense of hearing and to cool its body down.
2. Because they produce sound waves and when these waves collide with the prey, they bounce back to the bat, which helps the bat locate and hunt them.
3. Because it resorts to its shady, damp burrows during the day.
4. To cool the fox's body down.
5. By the movement of blood within the blood vessels; some blood vessels carry cold blood from the feet, other blood vessels carry warm blood from the rest of the body. These blood vessels wrap around each other and when they touch, heat transfers from the warm blood to the cold blood, and therefore the warm blood flows to the penguin's feet, it gets enough warm blood to keep its feet from freezing.

6. The polar bear adapts to the extreme cold in the polar region.

.....

.....

7. The camel overcomes the scarcity of water in the desert.

.....

.....

8. Fennec fox has brown fur.

.....

.....

9. Fennec foxes resort to their shady burrows during the daytime.

.....

.....

10. Arctic fox has thick fur.

.....

.....

11. The ears and short legs of an arctic fox are important to its life.

.....

.....

Answers:

6. Because of the thick fur that covers its body, in addition to the layer of fat that is located under its skin.
7. Because it rarely sweats and it drinks a lot when it finds water.
8. To be colored with the color of desert sand to help it hide from the eyes of the preys and predators.
9. To overcome the extreme rise in temperature at the daytime and to cool their bodies down.
10. To overcome the cold weather in the tundra or the cold desert.
11. To strengthen its sense of hearing and warm its body.

12. The bull shark has a black back and a white belly.

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.....

13. The body of the panther chameleon is covered with shiny scales.

.....

.....

14. The feet of the panther chameleon resemble the letter V.

.....

.....

15. The eyes of the panther chameleon move in two different directions at the same time.

.....

.....

16. The tap root of the acacia tree extends deep into the soil for a long distance.

.....

.....

17. The acacia tree stores water in its trunk.

.....

.....

Answers:

12. So that no one that swims above or below the shark can see it.
13. To be colored with the same color of the tropical habitat that contains many green leaves and blooming flowers, which helps it to hide.
14. To help with its balance and fast movement while hunting.
15. To search for food and to monitor its surroundings in order to hide and not to be an easy prey.
16. To reach the groundwater deep in the soil in order to overcome water scarcity.
17. To consume it when water is scarce and the plant is in need.

18. The acacia tree produces poisons.

.....

.....

19. The roots of mangrove tree are long and strong.

.....

.....

20. The liver and pancreas secrete food enzymes into the small intestine.

.....

.....

21. The teeth of cows are flat, while the teeth of dogs are sharp.

.....

.....

22. The diaphragm contracts downwards during inhalation.

.....

.....

23. The diaphragm relaxes upwards during exhalation.

.....

.....

Answers:

18. To make the leaves of the plant taste terrible.
19. To withstand the strong waves.
20. To break down food into nutrients.
21. The teeth of cows are flat to match the grass they are eating, while the dog's teeth are sharp so that it can tear meat.
22. To help the chest cavity to expand and allow the rush of oxygen from the air to the lungs, which become inflated.
23. To help the relaxation of the chest cavity and to push the air containing carbon dioxide gas out of the lungs and outside the body.

6 What happens in the following cases...?

1. The panther chameleon is in danger.

.....

2. The acacia tree leaves do not produce poisons.

.....

3. The Barbary fig has on sharp spines.

.....

4. Cows lose the ability to ruminate.

.....

5. The diaphragm does not contract downwards during the inhalation process.

.....

6. The diaphragm does not extend upwards during the exhalation process.

.....

Answers 6:

1. It opens its mouth to look wide, and its scales change colors, making it look fierce. It looks at different directions to monitor the danger.
2. These trees become food for the hungry animals because they would taste natural.
3. It will become food for the animals.
4. The cows' stomachs can't digest the grass, hence no energy would be obtained, so their bodies would become weak.
5. No air containing oxygen would be rushed into the lungs, so the inhalation process would not be complete.
6. No air containing carbon dioxide gas would be rushed out of the body, so the exhalation process would not be complete.

7 Compare between:

1. The fennec fox's ears and the penguin's feet, in terms of maintaining their body temperature.

Fennec Fox's Ears	Penguin's Feet

2. The fennec fox and the arctic fox in terms of: (a) The environment. (b) The color of the fur.

Fennec Fox	Arctic Fox

3. The acacia tree and the kapok tree in terms of: (a) The roots in each of them. (b) The roots importance.

Acacia Tree	Kapok Tree

Answers 7:

1.

Fennec Fox's Ears	Penguin's Feet
They work to cool the body of the fennec fox down.	They help the feathered penguin body to get rid of the excess heat.

2.

Fennec Fox	Arctic Fox
It lives in the hot desert. It has brown fur.	It lives in the cold desert or Tundra. It has white fur.

3.

Acacia Tree	Kapok Tree
The tap roots extend deep into the ground. The roots go deeper into the soil to search for water.	The buttress roots grow in the soil and they go upwards until they reach the trunk of the tree to support the tree.

8 What is meant by...?

1. Adaptation: .....
2. Structural adaptation: .....
3. Behavioral adaptation: .....
4. Countershading: .....
5. Rumination: .....
6. Inhalation: .....
7. Exhalation: .....
8. The slow environmental changes: .....
9. The fast environmental changes: .....
10. ARC: .....

Answers 8:

1. Adaptation: It is a change that occurs over time. It helps the living organism to survive.
2. Structural adaptation: A change that occurs inside the body of the living organism.
3. Behavioral adaptation: The change that occurs to the behavior of a living organism or a group of living organisms.
4. Countershading: It is the strategy of camouflage of the bull shark, which does not enable the creatures that swim above or below it to see it.
5. Rumination: It is the return back of food from the second stomach of the cow to the mouth to be chewed and digested again.
6. Inhalation: The entrance of air containing oxygen gas to the lungs.
7. Exhalation: The exit of air containing carbon dioxide gas out of the lungs.
8. The slow environmental changes: The changes that are caused by human activity over the course of days, years and decades.
9. The fast environmental changes: The changes that occur in the environment. It may cause the extinction of an organism.
10. ARC: Amphibian rescue and protection project in Gambo city, Republic of Panama.

Concept 2-1
Senses at Work

Remember that:

Reception of animals to stimuli:

* Firstly: Receiving influences from the environment **sensory receptors**. The eyes, nose, ears, tongue, skin receive external stimuli, and send a **nerve signal** for this stimulus to the brain.
  Nerve signals: They are **electrical impulses** that pass quickly through the nerves.
* Secondly: Information processing and perceiving. The brain **processes** the information that has reached it, and perceives the **meaning** of this information (the living organism perceives the concept and meaning of the influencer).
* Thirdly: Response and proper reaction to the influencer.
  The brain sends a **signal** that passes through the spinal cord to one of the body organs to take over the **appropriate response** and answer to the stimulus, whether by movement or speech...etc.

Example 1: Smell is an important part of our survival.
When the nose smells the odor of delicious food (baked pizza in the oven for example), the nose receives the odor and then sends a message **(nerve impulse)** to the brain which processes the information and determines that it is pizza, it sends a message **(nerve impulse)** to the salivary glands to secrete saliva.

Example 2: Smell is an important part of the bats and dolphins survival.
Bats and dolphins navigate and find their preys using **echolocation**. When a dolphin or a bat makes a sound, it spreads in the air. The sound produced by bats and dolphins bounce off the objects in their habitats. When this sound hits a surface (a prey for example), the echo bounces back so the dolphins and bats ears receive the echo and the brain determines the location of the prey.

General conclusion for the two previous examples:
The **sensory receptors** receive the external stimuli from the surroundings and then transmit these stimuli to the **nervous system**, which processes and perceives them. Then, it takes over the various parts of the body through a message **(nerve impulse)** from the brain to respond appropriately.

1 Choose the correct answer from the given answers:

1. Living things communicate with each other through ..... .
   a. sound b. movement
   c. sleeping d. a and b together
2. A dolphin uses the ..... phenomenon to protect itself and to get food.
   a. echo b. refraction
   c. diffraction d. dispersion
3. A dolphin is similar to ..... in the way they locate objects.
   a. Egyptian mongooses b. owls
   c. bats d. a and b together
4. The elephant uses its sense of ..... to search for food.
   a. vision b. hearing c. smell d. taste
5. When you search for something in the dark, you will use your sense of ..... .
   a. vision b. hearing
   c. smell d. all the previous
6. Snakes have the ability to sense heat in part of their ..... .
   a. tails b. backs c. skins d. faces
7. The two strong senses that owls have are ..... and ..... .
   a. vision, smell b. smell, taste
   c. vision, hearing d. hearing, touch
8. The bat depends on ..... to locate the prey.
   a. vision b. echo c. touch d. smell

Answers 1:

1. d	2. a	3. c	4. c
5. b	6. d	7. c	8. b

9. An owl can move its head ..... .
   a. in all directions
   b. forward
   c. downwards
   d. all the previous
10. In mammals, the nervous system consists of ..... .
   a. the brain
   b. the spinal cord
   c. the nerves
   d. all the previous
11. The Egyptian jerboa is active at night (nocturnal activity) to escape from ..... .
   a. the extreme heat during the day
   b. the bright light
   c. its predators
   d. all the previous
12. The legs of the Egyptian jerboa are similar to the legs of ..... .
   a. owls
   b. kangaroos
   c. mongooses
   d. bats
13. The jerboa belongs to ..... .
   a. insects
   b. reptiles
   c. birds
   d. rodents
14. The very strong sense owned by the jerboa is the ..... sense.
   a. touch
   b. smell
   c. hearing
   d. vision
15. The importance of the nervous system includes ..... .
   a. collecting information
   b. transmitting the signals to body parts
   c. responding to the stimuli after perceiving it
   d. all the pervious
16. Humans have sensory receptors that are ..... and ..... .
   a. nose, ear
   b. vision, hearing
   c. eye, nose
   d. a and c together

Answers:

9. a	10. d	11. a	12. b
13. d	14. c	15. d	16. d

2 Complete the following:

1. While moving, Egyptian mongoose produces ..... sounds to communicate with other members of its species.
2. Dolphins have a very powerful sense of ..... to locate (GPS) the things in their way of movement.
3. Both ..... and ..... are similar with one another in the method of locating objects by using the echo phenomenon.
4. In their hunt, snakes depend on the sensation of the ..... produced from the prey.
5. An owl can move its head in all ..... to search for preys.
6. An owl picks up distant sounds because its head resembles a ..... .
7. The nervous system of mammals consists of the brain, the ..... and the ..... .
8. The leg of the Egyptian jerboa is similar to the leg of the ..... so it can jump.
9. To identify the type of food prepared by a restaurant, the appropriate sense you use for that purpose is the sense of ..... .
10. The jerboa is able to avoid the danger of snakes due to the strength of its sense of ..... .

Answers 2:

1. chatter
2. hearing
3. dolphins, bats
4. heat
5. directions
6. dish
7. spinal cord, nerves
8. kangaroo
9. smell
10. hearing

3 Write the scientific term:

1. A group of sounds made by the Egyptian mongoose during its movement to communicate with members of its species.

(.....)

2. A phenomenon that both dolphins and bats depend on for positioning.

(.....)

3. The main control center in the animal body or organism.

(.....)

4. It transmits signals from the receptors to the brain and from the brain to all parts of the body.

(.....)

5. The period of time it takes for an organism to react when it senses danger.

(.....)

6. Organs in the body of an organism that receive external influences from the environment.

(.....)

Answers 3:

1. Chatter
2. Echo
3. Brain
4. Nerves
5. Reaction time
6. Sensory receptors

4 Correct the underlined words in the following statements:

1. Dolphins make sounds like chatter to communicate with members of their species.
2. The bat is similar to the snake in relying on the phenomenon of echo to determine its locations.
3. There is a certain part of the snake's tail that can sense heat.
4. The owl's lens-like face catches faint sounds.
5. The spinal cord passes through a canal in the arm bones.
6. The nerves that come out of the brain directly are the ones that reach the arm and the hand.
7. The jerboa's sense of smell is very strong.
8. The response time of the jerboa occurs in less than a fraction of an hour.
9. From the sensory receptors in the human is the stomach.
10. Nerve signals are heat impulses that pass through the nerves.

Answers 4:

1. Mongooses
2. dolphin
3. face
4. bowl
5. vertebral column
6. eyes and the heart
7. hearing
8. a second
9. eyes and nose
10. electric

5 Put a (✓) or a (✗) for the following statements:

1. The Egyptian mongoose makes noise-like sounds to communicate with the members of its species. ( )
2. The sense of hearing is one of the most important senses that a dolphin possesses. ( )
3. When the sound made by a dolphin returns back to it from an object, the dolphin can determine the object location. ( )
4. A dolphin's sense of vision is vanished. ( )
5. Dolphins are similar to bats in the way they locate objects. ( )
6. Sensory receptors perceive the influences of the external environment. ( )
7. Snakes can feel the heat emitted from the prey's body in a part of their faces. ( )
8. The bowl-like face of the owl distracts the sounds. ( )
9. An owl's ear amplifies the sounds it reaches. ( )
10. The spinal cord extends from the brain into a canal inside the vertebral column. ( )
11. Egyptian jerboa is a type of small reptiles. ( )
12. The jerboa's sense of smell enables it to smell the scent of its predators. ( )
13. The reaction time of the jerboa is less than a fraction of a second. ( )
14. The brain processes the information that it receives and understands its meaning. ( )

Answers 5:

1. ✗	2. ✓	3. ✓	4. ✗
5. ✓	6. ✗	7. ✓	8. ✗
9. ✓	10. ✓	11. ✗	12. ✗
13. ✓	14. ✓		

6 Write the scientific reason for each of the following:

1. The Egyptian mongoose can communicate with the members of its species while moving.

.....

.....

2. The dolphin can protect itself and secure its food in the dark bottom of the ocean.

.....

.....

3. The desert nocturnal animals are only active at night.

.....

.....

4. The snake can hunt in the dark despite of the lack of vision.

.....

.....

5. A bat can fly and hunt its prey in the dark without hitting surfaces.

.....

.....

Answers 6:

1. Because of the chatter-like sounds it makes during its movement, which is a means of communicating with the members of its species.
2. Because it emits sound waves in the dark, and when the waves hit an object, they bounce back to the dolphin.
3. To escape the very high daytime temperature, in addition to this, their sense of vision can work efficiently in the dark.
4. Because there is a certain part in the face of the snake that receives heat from the prey and determines the prey's location.
5. Because the bat emits sound waves in the dark, and when the sound waves hit an object, they bounce back to the bat.

6. An owl can hear the sound of its prey, no matter how weak it is.

.....

.....

7. The jerboa can avoid snakes while hunting at night.

.....

.....

7 Compare between:

Owls and bats, in terms of using their sense of hearing.

Owls	Bats

Answers 6:

6. Because its face is like a bowl that receives and directs these sounds. The ears of the owl amplifies these sounds, so it can hear the sounds clearly. Then, it turns its head towards the source of the sound and determines with its strong eyes the location of the prey.
7. When the snake makes noise, the sensory receptors in the jerboa's ear send a message to the brain that translates this message sending a response to the jerboa's legs to jump in a zigzag path.

Answers 7:

Answer by yourself.

8 What happens in the following cases...?

1. The snake approaches its prey at night.

.....

.....

2. The owl picks up the weak noise of the hiding prey.

.....

.....

3. The nose sniffs the smell of delicious food.

.....

.....

4. A snake approaches the jumping jerboa.

.....

.....

5. You hear a chirping bird.

.....

.....

6. The Egyptian mongoose produces a chatter sound.

.....

.....

Answers 8:

1. The snake senses the heat of the prey and locates it.
2. Its bowl-shaped face receives these sounds and directs them to the ear, which amplifies the sound. It turns its head towards the sound source, then it determines the location of the prey.
3. The nose sends nerve impulses through the nerves to the brain, which perceives the smell and determines the type of food.
4. The jerboa hears the sound of the snake and sends a message to the brain, so it senses the danger, then the brain sends a message to the legs of the jerboa to jumbo away from the snake.
5. The nerves in my ears send a message to the brain, the brain makes sense of the sound waves and the brain sends a message to the body about what to do, such as turning to look for the sound source.
6. It communicates with the members of its species.

9 What is meant by...?

1. Chatter sound produced by the Egyptian mongoose.

.....

.....

2. Echo.

.....

.....

3. The neural message.

.....

.....

4. Reaction time.

.....

.....

Answers 9:
Answer by yourself.

Concept 3-1
Light and the Sense of Sight

Remember that:

Light: It is the visible form of energy that is transmitted in the form of waves.

The fall of light on objects:

When light falls on an object, this object may:

1. absorb part of the falling light.
2. allow another part of the light energy to pass through.
3. reflect part of the light.

Opaque objects: They are objects that do not allow light to pass through them, such as the human body.

In the case of an opaque object: When light falls on an opaque object, such as a human body, it absorbs most of the light falling on it, and reflects another part, which results in the formation of a shadow of the body (any body that has a clear shadow is an opaque body).

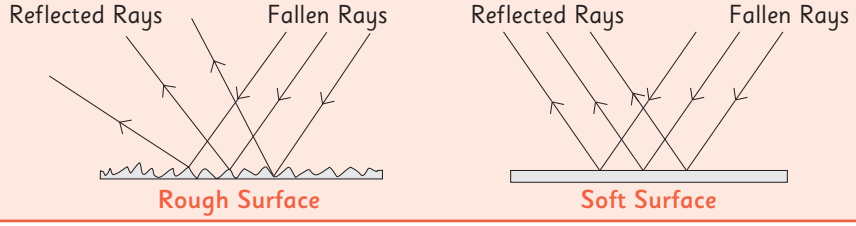
Transparent objects: They are objects that allow light to pass through them, such as: air, water, glass, lenses.

In the case of a transparent object: When light falls on a transparent object, it allows all or most of the light to pass through it.

* The way light is reflected from an object depends on how soft it is.

Types of light reflection:

1. The Regular Reflection: When light rays fall on a soft surface, such as: (mirror - intact mobile phone screen), the reflected rays are all reflected in one direction.
2. The Irregular Reflection: When light rays fall on a rough surface, such as: (a painted wall - a piece of wood), the reflected light rays are reflected in different directions.



Remember that:

* Many nocturnal animals have a **mirror-like** layer behind the retina, called the **tapetum**.
* Tigers and lions have **third eyelids** to protect the delicate eye area when attacking a prey.

Q 1: What determines the amount of light entering the eye?

Answer:

A pupil: The pupil is the **opening** at the **center** of the **iris** through which light passes. The iris adjusts the size of the pupil to control the amount of light that enters the eye.

* Staring at bright lights can damage your eyes.

Q 2: What does your vision depend on?

Answer:

Vision is the ability to see light. It depends on the **eyes** in detecting light and forming images. It also depends on the **brain** making sense of the images, so that we know what we are seeing.

Q 3: What is the name of the structure in the eye that allows dogs, cats and many other mammals to have better night vision than humans?

Answer:

Dogs' eyes, as those of other species active at night, have the **tapetum lucidum** located behind the retina to reflect incoming light and thus **increase night vision**.

Q 4: Which animal cannot see at night?

Answer:

The animal which cannot see at night is the **cow**.

Tigers, owls, and mouses are animals who can see in the dark. On the other hand, the cow is the animal who cannot see in the dark. It can see things in light only.

Q 5: Can elephants see?

Answer:

The sight of an elephant is **quite poor** and they can only see for **short distances** of up to **20** meters.

Q 6: What animal sees best in the dark?

Answer:

Owls see best in the dark.

1 Choose the correct answer from the given answers:

1. The ..... belong(s) to light sources.
   a. sun b. fan c. electric lamp d. a and c
2. ..... must be there for the eye to see.
   a. Sound b. Light c. Air d. Water
3. It is difficult for a person to see in the ..... light.
   a. sun b. electric lamp c. faint stars d. eye
4. The ..... eye glows in the dark, allowing it to see at night.
   a. fishing cat's b. mouse's c. bat's d. human's
5. All of the following have a membrane behind the retina, except for ..... .
   a. cats b. tigers c. humans d. lions
6. One of the senses that helps the nocturnal animal hunt in the dark is the ..... .
   a. sight b. smelling
   c. hearing d. all the previous
7. Tarsier monkey can see clearly in the dark because ..... .
   a. it has no tail
   b. its eyes are big
   c. it can rotate its head 180°
   d. both b and c together
8. The eye's sight sense of objects depends on the property of light ..... .
   a. reflection b. diffraction
   c. interference d. dispersion

Answers 1:

1. d	2. b	3. c	4. a
5. c	6. d	7. d	8. a

9. The light-sensitive layer in the wall of the human eye is the ..... .

a. iris b. retina c. cornea d. lens

10. Behind the retina of the nocturnal animals there is a special tissue layer called ..... .

a. retina b. choroid

c. tapetum lucidum d. cornea

11. The transparent object(s) among the following is/are ..... .

a. water b. air

c. glass d. all the previous

12. An opaque body has a shadow because ..... .

a. it allows light to pass through

b. it absorbs most of the light falling on it

c. it reflects part of the light falling on it

d. b and c together

13. The eye ..... focuses the light on the retina.

a. lens b. pupil c. lid d. iris

14. Body sight perception is achieved when a message arrives at the ..... .

a. eyes b. brain c. nerves d. retina

15. ..... is one of the sight defects.

a. Blurry vision

b. Distorted vision of nearby objects

c. Distorted vision of distant objects

d. all the pervious

Answers:

9. b	10. c	11. d	12. d
13. a	14. b	15. d	

2 Complete the following:

1. Among the sources of light that enable us to see are the ..... and ..... .
2. It is difficult for a person to see in ..... and in order to be able to see, he/she can wear ..... .
3. Some animals, such as ..... and ..... can see in the dark.
4. The senses of ..... and ..... help the nocturnal animals in hunting in the dark in addition to the sense of sight.
5. The tarsier monkey has eyes as big as the ..... eyes, it can rotate its head at an angle of ..... .
6. There is a relationship between the light and the sense of ..... .
7. The visible image of energy is ..... which is transmitted in the form of ..... .
8. The tissue that is sensitive to light and it is found in the wall of the human eye is known as the ..... .
9. The transparent tissue in the eyes of the nocturnal animal acts like a ..... that reflects the light that the ..... did not detect.
10. An example of dark objects is the ....., while ..... is an example of transparent objects.
11. The types of light reflection are ..... and ..... .
12. The eye ..... focuses the light falling on it on the ..... .
13. Among the sight defects is the ..... and ..... .
14. Vision defects can be treated by wearing ..... or having surgery using the ..... technology.

Answers 2:

1. sun, electrical lamps
2. dim light, night vision devices
3. fishing cats, owls
4. hearing, smell
5. owls, 180°
6. sight
7. light, waves
8. retina
9. mirror, retina
10. human body, air
11. regular, irregular reflections
12. lens, retina
13. blurry vision, distorted vision of nearby objects
14. medical glasses, laser

3 Write the scientific term:

1. The phenomenon that the eye depends on to see objects. (.....)
2. One of the effects of the external environment and it must be present in order for the eye to be able to see. (.....)
3. The visual form of the energy that travels in the air in the form of waves. (.....)
4. A sensitive tissue in the wall of the human eye that collects light. (.....)
5. A tissue behind the retina of the nocturnal animals. It reflects light to increase vision. (.....)
6. The scientific phenomenon that makes the fishing cat eyes glow in the dark. (.....)
7. A living creature with big eyes like an owl and it turns its head at an angle of 180°. (.....)
8. Materials that reflect light in several directions. (.....)
9. Materials that reflect light in one direction. (.....)
10. A structure in the eye that collects light on the retina. (.....)
11. Objects that do not allow light to pass through and have a shadow. (.....)
12. Objects that allow light to pass through. (.....)
13. One of the defects of vision, which makes the vision distorted due to a defect in the lens. (.....)

Answers 3:

1. Reflection	2. Light	3. Light energy
4. Retina	5. Tapetum lucidum	6. Reflection
7. Tarsier monkey	8. Rough materials	9. Smooth soft materials
10. Lens	11. Opaque objects	12. Transparent objects
13. Blurry vision		

4 Put a (✓) or a (✗) for the following statements:

1. The greater the amount of light falling on the eye, the clearer the vision. ( )
2. It is difficult for a person to see in the bright light where bright light hurts the eye. ( )
3. Tigers and lions have a transparent membrane in the composition of their eyes. ( )
4. The pupil of the nocturnal animal is narrow and it enables it to see well. ( )
5. The retina interprets information and sends signals to the muscles of the body. ( )
6. The eye's vision sense of an object depends on the amount of light penetrating the object only. ( )
7. The lens of the human eye focuses light on the retina. ( )
8. The eye sends a signal to the brain when seeing to interpret information. ( )
9. Reindeers, horses, cats and dogs have a transparent membrane to increase the sense of vision. ( )
10. The transparent membrane absorbs light to increase the animal's sense of vision. ( )
11. The opaque objects allow light to pass through them, so they have a shadow. ( )
12. Taste is one of the senses that helps the nocturnal animal to hunt in the dark. ( )
13. One of the visual defects caused by a defect in the lens is blurry vision. ( )
14. A dark place in the air contains a very small amount of light. ( )

Answers 4:

1. ✓	2. ✓	3. ✓	4. ✗
5. ✗	6. ✗	7. ✓	8. ✓
9. ✓	10. ✗	11. ✗	12. ✗
13. ✓	14. ✓		

5 Correct the underlined words in the following statements:

1. The eye's vision of objects depends on the phenomenon of refraction of light.
2. In order for a person to see in the dark, he/she must wear medical glasses to help him/her gather light.
3. The transparent membrane in the cat's eye acts as a lens that refracts light for the retina.
4. The fishing cat's eye glows due to the presence of a lens behind the retina in the eye.
5. A tarsier monkey can move its eyes at an angle of 180°.
6. The cornea in the human eye focuses light onto the retina.
7. A regular reflection occurs when light falls on a piece of wood.
8. Transparent objects have a shadow because light does not pass through them.
9. The perception of seeing objects is achieved when the eye's message reaches the retina.
10. When the lens of the eye does not work properly, color blindness occurs.
11. Light energy is transmitted through the air in the form of successive batches.
12. The structure of the human eye is similar to that of a nocturnal animal.

Answers 5:

1. reflection
2. night vision devices
3. a mirror that reflects
4. transparent tissue (tapetum lucidum)
5. head
6. lens
7. glass plate
8. Opaque
9. brain
10. blurry vision
11. waves
12. different

6 Write the scientific reason:

1. It is difficult for a person to see in the dark.

2. A tarsier monkey can see in dim light.

3. Rough objects scatter light falling on them after being reflected.

4. A shadow forms when light falls on an opaque object.

5. The fishing cat's eyes glow at night.

6. The retina plays an effective role in the human eye.

Answers 6:

1. Because light (that is reflected by the eye) does not reach objects and because the human eye is made to see in light only.
2. Because of its large eyes that collect any light around it, to form a clear image of the surroundings around it in addition to rotating its head by 180°.
3. Because of the irregular reflection.
4. Because the opaque objects do not allow light to pass through, so a shadow is formed.
5. Due to the presence of the transparent membrane (Tapetum Lucidum) that reflects light that is not detected by the retina.
6. Because the retina converts the light that the eye has captured into electric signals that the brain can process and perceive.

7 Extract the different word and then write what connects the rest of the words:

1. Electrical lamp – fire – sun – candle – flash light. .....
2. Sun – fire – chair – lamp. .....
3. Reindeer – fishing cat – human – owl. .....
4. Lens – glass – retina – tapetum lucidum. .....
5. Cloth – mirror – wood – painted wall. .....
6. Glass plate – wood piece – mirror – stainless steel plate. .....
7. Blurry vision – distorted vision of distant objects – light – distorted vision of nearby objects. .....

8 What is meant by...?

1. Retina .....
2. Eye lens .....
3. Tapetum lucidum .....
4. Regular reflection .....

Answers 7:

1. Sun, (artificial light sources)
2. Chair, (light sources)
3. Human, (strong sense of sight)
4. Glass, (nocturnal animals eye structures)
5. Mirror, (rough surfaces)
6. Wood piece, (smooth surfaces)
7. Light (vision defects)

Answers 8:

1. Retina: a tissue in the wall of the eye that collects light through the lens.
2. Eye lens: a transparent structure of the eye that redirects and focuses light on the retina.
3. Tapetum lucidum: a tissue behind the retina of a nocturnal animal that reflects light that is not detected by the retina, this leads to increasing the ability of the nocturnal animal's eye to see.
4. Regular reflection: it is the reflection of light rays in one direction when they fall on a smooth surface.

5. Irregular reflection
6. Light
7. Opaque bodies
8. Transparent bodies

9 Compare between:

Human - fish cat - tarsier monkey → in terms of: (vision in the dark - type of food).

10 What happens in the following cases...?

1. The absence of the transparent tissue in the nocturnal animal's eyes.
2. The failure of nerve signals from the retina to reach the brain.
3. The failure to wear glasses for those who have vision defects.
4. The total reflection absorption of the light falling on the body.
5. Partial eye lens darkening or partial cataract.

Answers 8:

5. Irregular reflection: it is the reflection of light rays in several directions when they fall on a rough surface.
6. Light: is the visible form of energy that spreads in the form of waves.
7. Opaque objects: they are objects that do not allow light to pass through them, so they form a shadow.
8. Transparent objects: they are objects that allow light to pass through, but do not have a shadow.

Answers 9:

Answer by yourself.

Answers 10:

1. The inability of the nocturnal animal to see in the dark, which reduces its ability to hunt in the dark and threatens its life.
2. The vision is not achieved and the inability of the body to explain what it sees.
3. The lack of good vision.
4. The lack of vision of the body because no light from it reaches the eyes.
5. Blurry vision occurs.

Concept 4-1
Communication and Information Transfer

Remember that:

Animals use movement as a way of communication.

Humans and animals use **sound** and **light** as a means of communication.

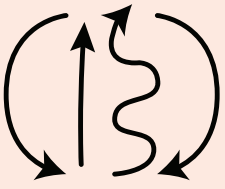
Organisms may use movement as a means of communication, for example:

* You may wave to a friend from a distance and he/she will understand that you are welcoming him/her.
* You may shake your head to a colleague during a discussion, and he/she will understand that you agree or disagree with his/her opinion.

Bees use movement to communicate:

Bees communicate with each other as follows:

Using the **vibration** of the wings, when the bee rotates around itself in a pattern in the form of the number (8), it is thus telling the bees the **correct direction and distance to food**.



Remember that:

Communication among honey bees:

* Bees in their hives can communicate with each other using **motion** or **dancing**.
* The way of dancing tells other bees the **direction** and **distance** to **food** and **water resources**.

The bees in the hives **interpret** the **code** and read it, then fly off to the specified location.

Coding with honey bees:

1. The bee makes **one round dance** if the flower is very **near**.
2. The bee makes a **waggle dance** if the flower is **far away**.

Q 1: Where do bats live in caves?

Answer:

Caves provide the kind of **protected shelter** in which bats can thrive. Hanging from the ceiling of a cave, bats are out of reach of most of their predators. Most species of bats live in **large colonies**.

Q 2: Can bats be in light?

Answer:

Bats **do not like** lights. During daytime, when the light is so clear, the vision of bats is **not good enough** for them to be able to pick up predators. If bats come out during the day, they will be picked off very easily. Bats do not like light and they will avoid it as much as possible.

The Sinai agama:

It is an agamid lizard. It is active during **daytime** and feeds on **insects** and **plants**. During the mating season, males become a **striking blue** color to attract females. They are able to regulate their body temperature by behavior.

1 Choose the correct answer from the given answers:

1. The firefly or luminous beetle makes light show patterns with the purpose of ..... .
   a. warning off the predators
   b. attracting the mate
   c. hunting
   d. a and b together
2. Humpback whales communicate with each other by ..... .
   a. sound
   b. light
   c. touch
   d. smell
3. Morse code uses patterns of ..... .
   a. sound
   b. light
   c. sound or light
   d. motion
4. Bees can communicate with each other using ..... patterns.
   a. motion
   b. sound
   c. touch
   d. light
5. Ants communicate with each other through ..... .
   a. taste
   b. vision
   c. hearing
   d. smell
6. Scientists have invented the cane to help blind people depending on the ..... phenomenon.
   a. refraction
   b. echo
   c. reflection
   d. interference
7. A blind cane transforms the sound waves it receives into ..... .
   a. dances
   b. lights
   c. vibrations
   d. sounds
8. Both the bat and the blind cane produce ..... .
   a. low pitched sound waves
   b. light waves
   c. electromagnetic waves
   d. high pitched sound waves
9. Sinai lizards reproduce in ..... .
   a. late spring
   b. early autumn
   c. early summer
   d. late winter
10. One of the most important reasons for the disappearance of Sinai lizards from their homeland is the ..... .
    a. plentiful food
    b. plentiful water
    c. habitat destruction
    d. shelter

Answers 1:

1. d	2. a	3. c	4. a	5. d
6. b	7. c	8. d	9. a	10. c

2 Complete the following:

1. Living organisms use the elements of the external environment to communicate with each other, such as ..... and ..... .
2. There is a type of beetle in Thailand that lives on the ..... trees and they produce patterns of ..... to communicate with each other.
3. The ancient Egyptians made paper from ....., while the ancient Mayans made paper from the ..... .
4. The ancient Egyptians invented the ..... writing which consisted of 700 symbols.
5. The ..... writing appeared in Iraq (Mesopotamia) by the year 3000 BC.
6. ..... writing appeared in Central America by the ..... in 300 BC.
7. The ancient Egyptians made papyrus from ..... .
8. Humpback whales communicate with each other by ....., while bees communicate with each other through ..... .
9. The bat uses its ..... to see in the dark.
10. Whales produce ..... sounds in winter to complete the process of ..... .
11. The blind cane converts the echo sound waves into ..... .
12. The bee dances one dance if the flower is ....., while it dances three or more dances if the flower is ..... .
13. The Sinai lizard tongue is ..... like chewing gum to help catching the ..... .
14. In late spring, the color of the male Sinai lizard turns to ..... color to attract females.

Answers 2:

1. sound, light
2. mangrove, light flashes
3. papyrus, inner bark of certain trees
4. hieroglyphs
5. cuneiform
6. Hieroglyphs, Maya peoples
7. reeds
8. singing, movement
9. ears
10. high pitched, mating
11. vibrations
12. nearby, far away
13. sticky, prey
14. blue

3 Write the scientific term for each of the following statements:

1. The flashing of thousands of the firefly or luminous beetles together at night in short intervals of time. (.....)
2. A type of writing invented by the Egyptians in 3000 BC. (.....)
3. A type of paper invented by the ancient Egyptians from reeds. (.....)
4. A language invented by the Maya peoples in 300 BC and it consists of 800 symbols. (.....)
5. A Chinese scientist who invented paper. (.....)
6. The way by which humpback whales communicate with each other. (.....)
7. The number of waves that pass a given point within a given time. (.....)
8. A scientist who has developed a communication system that consists of sound and light patterns. (.....)
9. A communication system consisting of sound and light patterns represented by a group of dots and dashes. (.....)
10. The number of dances the bee dances if the flower is near. (.....)

Answers 3:

1. Light shows
2. Hieroglyphs
3. Papyrus
4. Hieroglyphs
5. Chai
6. Ranges of notes
7. Frequency
8. Samuel Morse
9. Morse code
10. One dance

11. The number of dances the bee dances if the flower is far away.

(.....)

12. The sense that a bat depends on to fly in the dark quickly.

(.....)

13. A group of ants in charge of searching for food.

(.....)

14. A group of ants in charge of gathering food. (.....)

15. A group of ants responsible for alerting for the lack of food.

(.....)

4 Put a (✓) or a (✗) for the following statements:

1. Beetles communicate in Thailand by making light shows. ( )
2. Beetles in Thailand perform their light shows in order to make people happy. ( )
3. The monkeys communicate by shouting, while the wolves communicate by howling. ( )
4. The written language is one of the most important ways of transmitting human thoughts and giving experiences to the next generations. ( )
5. The language of communication should be understood by the receiver, not the sender. ( )

Answers 3:

11. Three or more dances
12. Hearing
13. Solider ants
14. Nurse ants
15. Scout ants

Answers 4:

1. ✓ 2. ✗ 3. ✓
4. ✓ 5. ✗

6. Cuneiform writing appeared in Central America in 300 BC. ( )
7. Chai created a form of paper using the inner bark of mulberry and bamboo trees. ( )
8. Humpback whales communicate with each other using a single musical note. ( )
9. Whales produce a high pitched sound in the winter and a low pitched sound in the summer. ( )
10. Morse code is a set of sound and light patterns represented by a set of dashes and dots. ( )
11. The single dance in a bee is to vibrate to the right twice and to the left twice. ( )
12. Ants communicate with each other by using sound. ( )
13. The idea of making a cane for the blind is inspired by the movement of a bat in the dark. ( )
14. The blind cane emits low pitched sound waves. ( )
15. The blind cane converts the sound waves received by the echo into vibrations that the blind can feel. ( )
16. Bats don't live in light. ( )
17. The scales that cover the skin of the Sinai lizard help them in keeping water. ( )
18. The Sinai lizard (blue agama) feeds on insects. ( )

Answers:

6. ✗	7. ✓	8. ✗	9. ✓
10. ✓	11. ✗	12. ✗	13. ✓
14. ✗	15. ✓	16. ✓	17. ✓
18. ✓			

5 Correct the underlined words in the following statements:

1. There is a type of beetle in Thailand that lives on acacia trees and emits luminous flashes.
2. Ancient Egyptian hieroglyphic writing consists of 800 symbols, while hieroglyphic writing in Central America consists of 700 symbols.
3. The ancient Egyptians created papyrus from mulberry trees.
4. Humpback whales make random sounds to communicate with each other.
5. Humpback whale produces high pitched sound in summer and low pitched sound in winter.
6. Marine lighthouses encode information in the form of sound signals at night to guide the ships.
7. In the nineteenth century, Chai developed a communication system as a way of communicating among people.
8. Bees use vision to communicate with each other.
9. The more the bees dance, the closer the flowers are to the bees.
10. Ants like to live alone and communicate with each other.
11. Both the bat and the blind cane rely on the interference phenomenon.
12. The blind cane picks up the echo from the body and turns it into lights that the blind can feel.
13. The color of male Sinai lizard turns to green in the mating season.
14. The Sinai lizard stands on its lower limbs so that its belly is higher than the hot rocks until it is high.
15. Sinai lizards feed mainly on small reptiles.

Answers 5:

1. mangrove	2. 700, 800	3. reed trees
4. a wide range of notes	5. low, high	6. light flashes
7. Samuel Morse	8. dancing and shaking	9. farther
10. in colonies	11. echo	12. vibrations
13. blue	14. upper	15. insects and plants

6 Write the scientific reasons for each of the following:

1. The wings of the fireflies can light up.

.....

.....

2. The fireflies communicate with each other by using the light shows.

.....

.....

3. The written language is considered as the most important method of communication in the human world.

.....

.....

4. The code should be understood by everyone including the sender and the receiver.

.....

.....

5. Humpback whales make high pitched sounds in winter season.

.....

.....

6. A bat can hunt its prey in the dark.

.....

.....

Answers 6:

1. Because a certain chemical reaction occurs inside the bodies of these beetles, light is produced due to the illumination of the wings.
2. In order to warn each other from their predators and to complete their mating.
3. Because the written language facilitates communication in the human world and helps him in understanding what has happened in the past and to share ideas with the next generations.
4. In order that neither of them makes a mistake and to clarify the message.
5. To complete the mating process in winter.
6. Because a bat emits high pitched sound waves during its flight. When the sound waves hit the prey, they bounce back to the bat in the form of echo, so the bat can locate its prey.

7. Blind people who use canes can move with ease.

8. Bats make sounds even when they are not flying.

9. The Sinai lizard is characterized by having a long and thin body.

10. The Sinai lizard stands on its front limbs.

11. The males of Sinai lizards stand on the high rocks.

12. The males of Sinai lizards are blue in late spring.

13. The tongue of the Sinai lizard is sticky.

Answers:

7. Because the echo sound waves are received by the blind cane and transformed into vibrations, which the blind person feels through his thumb, then he can determine the locations of the obstacles.
8. To communicate with each other about food, sleeping and the mates choice.
9. To help it in climbing the rocks and to run over them quickly.
10. So that its belly remains on top of the hot rocks, as it is active in the hottest time of the day.
11. For monitoring the predators and guarding the burrow.
12. To attract the females to complete mating.
13. So that it can catch its prey.

7 What happens in the following cases...?

1. The absence of the chemical reaction inside the bodies of the fireflies.

.....

.....

2. The language of communication is not understandable for the receiver of the message.

.....

.....

3. If the bees make one dance.

.....

.....

4. If the bees make three or more dances.

.....

.....

5. One of the parts of a communication system consisting of several parts is out of order.

.....

.....

Answers 7:

1. They lose their ability to light up, as a result they lose their ability to communicate. Also, they could not warn others from the predators or attract each other for mating. This may expose them to extinction.
2. The receiver of the message would not be able to understand.
3. This indicates that the flowers are nearby.
4. This indicates that the flowers are far away.
5. The whole system stops working.

6. Nurse ants release a strong smell.

.....

.....

7. Solider ants release a strong smell.

.....

.....

8. Scout ants release a strong smell.

.....

.....

9. The echoed sound waves do not reach the bat during its flight.

.....

.....

10. If the blind cane did not convert the echo to vibration.

.....

.....

11. If the original habitat of an animal is destroyed.

.....

.....

Answers:

6. This indicates the lack of food, so the scout ants begin to search for food.
7. The scout ants receive this message and begin to alert ants to collect the food in the burrows.
8. This indicates that there is a danger nearby.
9. The bats will collide with a surface or barrier during its flight.
10. The blind person would not be able to locate the obstacles in front of him, and the cane becomes useless.
11. This animal disappears from the habitat and it will be displaced to find another habitat.

8 Compare between each of the following:

1. Fireflies - bees - ants, in terms of the communication method.
2. Sound waves emitted by humpback whales in both summer season and winter season.
3. Both single dance and repeated dances made by bees.
4. Bats and blind canes in terms of transmitted sound waves and echoed sound waves.

9 What is meant by...?

1. Normal frequency or pitched sound.
2. High frequency or high pitched sound.
3. Low frequency or low pitched sound.

Answers 8:

Answer by yourself.

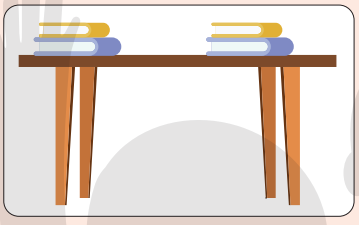
Answers 9:

1. Normal frequency: number of waves that passing through a given point in a specific time.
2. High frequency: a large number of waves passing through a given point in shorter time.
3. Low frequency: a small number of waves passing through a given point in longer time.

Concept 2-1
Motion and Stopping

Remember that:

When does the movement stop?



- Gravity **pulls** the book downwards.
- The table **pushes** the book upwards with a force **equal to** the force of gravity.

- Gravity **attracts** the girl downwards.
- The ground **pushes** the girl upwards with a force **equal to** the force of gravity.

* Two **equal** forces in magnitude, but **opposite** in direction.
* Upward force or pushing force.
* Downward force or gravity force.
* The book does not move; the **two** exerting forces are **balanced**.
* The girl does not move; the **two** exerting forces are **balanced**.

As a result:

Moving bodies stop when there are **two forces** equal in **magnitude**, but opposite in **direction**.

Q 1: How does the car stop moving?

Answer: When the car driver applies the **brakes force**.

Condition:

The brakes force must be equal to the car engine force in **magnitude**, but opposite in **direction**.

Q 2: When does the car stop moving?

a) When the car runs out of **fuel**.

b) When the driver applies the **brakes**.

Remember that:

Conditions:

The presence of friction forces:

a) between the **wheels** of the car and the **ground**.

b) between the **surface** of the car and the **air**.

* The **two acting forces** are equal in **magnitude**, but opposite in the **direction** of its motion.
* Appyling brakes **slows down** the car i.e. **decreases** the car **speed** gradually until the car comes to rest i.e. the car **stops**.

Friction:

A **force** created between the surfaces of two bodies **in contact**.

In both cases:

Q 3: What do you suppose when comparing the magnitudes of two forces?

Answer:

1. The **pushing force** acting on the moving car = The **sum** of the two forces of **friction**.
2. Car engine **power** = The **friction force** acting on the car.

Q 4: What is a "Pull Force"?

Answer:

The pull force is defined as a **force** that causes an **object** to **move** towards the person who is **pulling** the object.

Examples:

1. Opening a door.
2. Plucking the string of a guitar.
3. Drawing a bucket of water from a well.
4. Pulling the curtain.

Remember that:

Q 5: What is a "Push Force"?

Answer:

It is defined as a **force** that causes an **object** to **move** from its state of **rest**. When an object is **pushed**, it tends to **move away**.

Examples:

1. Kicking a ball.
2. Closing a door.
3. Pushing a trolley.
4. Inserting a plug into the socket.

*** Car accelerator pedal:**

The accelerator is also known as "**gas pedal**". This pedal controls the amount of the **burned fuel** and thereby controls the **speed** of the car.

*** Car brakes:**

A device for **slowing** or **stopping** the car by means of **friction force**.

Q 6: Which best describes a force?

Answer:

Forces can be described as **pushing or pulling** an object. This may occur due to phenomena, such as **gravity**, **friction**, or anything that might **change** the body **speed**.

Q 7: What is the scientific idea of work?

Answer:

Work is a **measure of energy transfer** that occurs when an object is **moved** over a distance by an **external force**.

*** Seat belt:**

A seat belt is a **vehicle safety device** designed to secure the driver or the passenger of a vehicle against any **harmful movement** that may result during a collision.

Remember that:

Motion:
Movement of an object from a **place** to **another**.
Examples:
1. Moving a car.
2. Moving a book on a table.

Thermal energy: random or **internal** kinetic energy.
* The greater the **thermal energy**, the greater the **kinetic energy**.

Gravitational Potential Energy:
is the energy an object possesses because of its **position**.
Examples:
1. A raised weight.
2. Water that is behind a dam.
3. A car that is parked at the top of a hill.
4. A yoyo before it is released.
5. River water at the top of a waterfall.
6. A book on a table before it falls.
7. A child at the top of a slide.
8. Ripe fruit before it falls.

Gravitational Force:
The force of **attraction** on a body by **Earth**.

Gravitational Energy:
The energy **stored** in an object due to its **height** above Earth (if it's **further** away or **closer** to the ground). It is a form of **potential energy**.
* An object's height **above** the **ground** gives it gravitational energy.

Q 8: What affects gravitational potential energy?
Gravitational potential energy is determined by three factors: **mass**, **gravity**, and **height**.

Kinetic energy: The energy that is possessed by an object due to its **motion**.
Potential energy: The energy that is possessed by an object due to its **position**.

* **The two types of mechanical energy:**
1. Kinetic Energy (energy of **motion**)
2. Potential Energy (stored energy of **position**).

Q 9: What source does energy come from?
Answer:
Energy supply comes mainly from the **fuel**.

1 Choose the correct answer from the given answers:

1. The force acting on the person carrying the gas cylinder is the force of ..... .
   a. air resistance b. gravity c. friction d. engine
2. What is the type of force used with the shopping cart? ..... .
   a. Gravity b. Wind c. Pulling d. Pushing
3. The ball resting on the ground is due to the force of ..... .
   a. friction b. air resistance c. movement d. gravity
4. The wind power becomes larger, when ..... .
   a. taking a long breath b. things around us move
   c. rain falls d. a heavy load is moved
5. The ball resting on the ground moves, when ..... .
   a. light falls on it b. gravity acts on it
   c. a big force acts on it d. it is touched
6. All the following are considered as a force, except ..... .
   a. gravity b. friction c. cloud d. electricity
7. A person needs ..... to climb a slope.
   a. work b. energy c. force d. move
8. If you want a ball to reach a certain height, what should you do? ..... .
   a. I kick it gently b. I kick it hard
   c. I decrease its speed d. I change its direction
9. The two types of force are ..... .
   a. pull and push b. pull and attract
   c. light and strong d. visible and invisible

Answers 1:

1. b	2. d	3. d	4. b	5. c
6. c	7. c	8. b	9. a	

10. While you are pushing or pulling a car, you need ..... .

a. mass b. weight c. volume d. energy

11. The motive force of the cart represented in the picture is a ..... force.

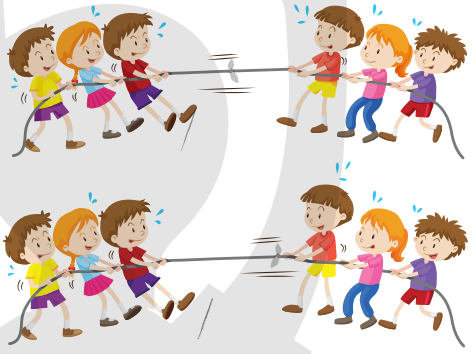
a. gravity

b. wind

c. cloud

d. pushing

12. In the opposite figure, the forces of the two teams are ..... .



a. balanced

b. unbalanced

c. vanished

d. not related

13. The change in the position of an object over time is caused by ..... .

a. motion b. energy c. force d. gravity

14. In the opposite figure, what made the ball move up and fly in the air?

a. Push force

b. Pull force

c. Balanced force

d. Unbalanced force

15. In the previous figure, what made the ball fall down?

a. Friction force b. Gravity force

c. Electric force d. Wind force

Answers:

10. d	11. d	12. b
13. a	14. a	15. b

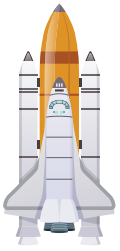
16. What are the two things that must happen for the ball to be in motion state?
    a. There must be a force to start its movement and change its position
    b. There must be a force acting on the ball until it disappears
    c. Without any acting force, it changes its position
    d. Without any acting force, the ball does not disappear
17. An example of movement that can be seen easily is the ..... .
    a. leaves blown by the wind
    b. ball at rest
    c. chair we are sitting on
    d. television while watching the match
18. What are the forces acting on us when we are at rest?
    a. Friction force
    b. Pushing force of Earth on us
    c. Gravity force
    d. b and c together
19. An example of starting the movement by pulling is ..... .
    a. pulling a baby car from behind while it is in motion
    b. pulling a running football player from behind
    c. pulling an elevator downwards, while it is moving upwards
    d. pulling a static horse-drawn cart from the front
20. Examples of the pulling force include ..... .
    a. pulling a static horse-drawn cart from the front
    b. pulling a static baby stroller with a rope
    c. pulling a static horse-drawn cart from behind
    d. pulling a static market cart from the front

Answers:

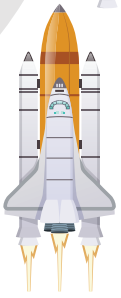
16. a	17. a	18. d
19. d	20. c	

2 Complete the following:

1. Objects in motion stop, when the two acting forces are ..... in magnitude, but ..... in direction.
2. The force between the surfaces of two bodies in contact is called the ..... force.
3. The car stops moving, when acted upon by a/an ..... brakes force to that applied by the car engine.
4. When the car runs out of fuel while it is in motion, it stops because of the ..... force.
5. The forces of friction that hinder the movement of the car are between the ..... and the ..... as well as between the ..... and the ..... .
6. The opposite figure shows the space rocket before launching, forces affecting the space rocket are the gravitational force and the pushing force of Earth on the rocket, and they are ..... forces.



7. The opposite figure shows the space rocket after launching, forces affecting the space rocket are the gravitational force and the pushing force of Earth on the rocket, and they are ..... forces.



8. When an object is pushed with a large force, it will move a ..... distance. When the same object is pushed with a small force, it will move a ..... distance .
9. The greater the force acting on the body, the ..... the distance it moves.

Answers 2:

1. equal, opposite
2. friction
3. equal
4. friction
5. car wheels, ground - surface of the car, air
6. balanced
7. unbalanced
8. longer, shorter
9. larger

10. For a static body to start moving from rest, there must be a ..... force and for a moving body to stop moving, there must be a ..... force.
11. There must be a/an ..... to use force on a body.
12. Forces cause the transfer of ..... from a body to another.
13. The amount of energy required to move an object by the force acting on it is called ..... .
14. The body changes its state from rest or motion if the acting forces are ..... .
15. The body does not change its state from rest or motion if the acting forces are ..... .
16. If the body moves in a straight line with the same speed, then the forces acting on it are ..... forces.
17. The moving body will stop its movement if the acting forces upon it are ..... .
18. Forces act on objects to make the moving body ....., the body at rest to ....., the body moving in a certain direction to ....., and the body moving with a certain speed either to ..... or ..... its speed.
19. The car driver can stop his car by using the ..... because of the ..... force.
20. The car driver can increase the speed of the car by using the ..... and the reason is to increase the consumption of ..... which burns and turns into energy.

Answers:

10. pulling, pushing
11. energy
12. energy
13. work
14. unbalanced
15. balanced
16. balanced
17. unbalanced
18. stop, start moving, change its direction, increase, decrease
19. brakes, friction
20. car accelerator, fuel

3 Write the scientific term:

1. A force that attracts bodies towards the center of the Earth.
(.....)
2. Energy is neither created nor destroyed, but transformed from one form to another. (.....)
3. Moving an object from one place to another (or changing the position of the body). (.....)
4. A force acting on a body to move it a certain distance.
(.....)
5. The energy that is converted into heat or motion. (.....)
6. The energy that turns into heat. (.....)
7. The ability to do work or make a change, or the ability to move an object over a certain distance. (.....)
8. The energy stored in a body. It depends on its length and mass.
(.....)
9. The energy that the body possesses as a result of its motion.
(.....)
10. The pull or push acting on a body. (.....)

Answers 3:

1. Gravity
2. Law of Energy Conservation
3. Work
4. Motion
5. Thermal energy
6. Thermal energy
7. Energy
8. Gravitational potential energy
9. Kinetic energy
10. Force

11. A natural or artificial body revolving around another body in space.
(.....)

12. The source from which a certain form of energy comes.
(.....)

13. A property by which materials do not allow energy to transfer through them.
(.....)

14. A substance used to generate energy. (.....)

15. A force created between the surfaces of two bodies in contact. It hinders motion. (.....)

Answers:

11. Satellite
12. Fuel
13. Resistance
14. Fuel
15. Friction

4 Put a (✓) or a (✗) for the following statements:

1. Friction works in the same direction of the moving body. ( )
2. The moving body continues to move unless acted upon by a force that can change its state of motion. ( )
3. Pulling force makes the body move away from the force. ( )
4. The force exerted by a horse on a vegetable cart is pulling force. ( )
5. The static body does not move if a balanced force acts on it. ( )
6. A force may lead to the movement of a static body. ( )
7. Work is the amount of energy that provides the force needed to move a body. ( )
8. The greater the force acting on an object, the smaller the distance it will move. ( )
9. When a car hits a wall, the car stops. ( )
10. Friction force always increases the speed of the moving body. ( )
11. If a force is acting on a moving body in the direction of the moving body, the body will stop. ( )
12. One of the two teams will win in the tug of war game if the acting forces are unbalanced. ( )
13. A ball that is thrown up in the air stops, due to the force of friction only. ( )
14. The movement of the football player can be seen, while the movement of Earth around the sun cannot be seen. ( )

Answers 4:

1. ✗	2. ✓	3. ✗	4. ✓
5. ✓	6. ✓	7. ✓	8. ✗
9. ✓	10. ✗	11. ✗	12. ✓
13. ✗	14. ✓		

15. Gravity pulls the ball downwards. ( )
16. When the car runs out of fuel, it stops due to the friction force. ( )
17. Force does not transfer energy from one body to another. ( )
18. Work is energy that is not required to move the body. ( )
19. The balanced forces acting on a body change its state. ( )
20. The static body may move if unbalanced forces act on it. ( )

5 Correct the underlined words in the following statements:

1. The body will remain at rest unless a/an energy acts upon it to change its state.
2. The state of the static body changes if an unbalanced force acts on it.
3. Work transfers energy from one body to another.
4. Force is the energy that moves an object towards a certain distance in the same direction of the acting force.
5. Work is an external stimulus that may change the state of body if it is static or moving.
6. When a body is in motion, this means that it is affected by a balanced force.
7. If the force acting on a moving body is in the opposite direction of the moving body, then the speed of the moving body does not change.

Answers 4:

15. ✓ 16. ✓ 17. ✗
18. ✗ 19. ✗ 20. ✓

Answers 5:

1. force 2. does not change 3. Force
4. Work 5. Force 6. an unbalanced
7. decreases

8. For a rocket to reach space, the forces acting on it should be balanced.
9. An object is pushed with a force and it covers a distance of 10 meters. If half of this force acts on the object, it will move for a distance of 20 meters.
10. The satellite continues to rotate for hundreds of years at the same speed because the forces acting on it are balanced forces.
11. The car stops when it hits a wall because of the force of friction.
12. Gravity is a force created by the surface contact between two bodies.
13. Pulling a static car with a rope using another moving car is an example of the acting work.
14. The forces shown in the figure by which each person exerts on the other is non-existent.

15. Rotation of your desk around Earth can be observed.

Answers:

8. unbalanced	9. 5	
10. vanished	11. the wall itself	12. Friction
13. force	14. balanced	15. cannot be

6 Write the scientific reasons for each of the following:

1. The rotation of Earth around the sun cannot be observed.

.....

.....

2. The aircraft moves faster than the truck.

.....

.....

3. Truck moving after refueling.

.....

.....

4. The moving car stops when its engine is turned off.

.....

.....

5. One team wins a tug-of-war game.

.....

.....

Answers 6:

1. Because all objects on the Earth's surface rotate around the Earth's center with the same speed.
2. Because:
   a. The power of the aircraft engine is much stronger than that of the truck engine.
   b. The friction force is less in case of the aircraft.
3. Due to the high consumption of the fuel. This leads to the generation of high heat.
4. Because of the friction force.
5. Because of the existence of unbalanced forces acting on both teams.

7 What happens in the following cases...?

1. You do not wear your seat belt while riding in the car.

.....

.....

2. Two cars collide.

.....

.....

3. The speed of the car is high during the collision.

.....

.....

4. An external force acts on a body.

.....

.....

5. A truck is equipped with three jet engines.

.....

.....

Answers 7:

1. A harmful movement may result during a collision.
2. This leads to:
   a. Car damage.
   b. Sound of car crash.
   c. Cuts and burns.
3. Car distortion occurs:
   a. A fire may take place.
   b. Skin damage.
   c. Fractures.
   d. Loss of limbs.
   e. Injuries.
   f. Brain injuries
   g. Internal organ damage.
4. It may change its state whether in motion or at rest.
5. The speed of the truck increases.

6. Two cars move in the same direction at the same speed.

.....

.....

7. A car driver applies the brakes.

.....

.....

8. The satellite is launched to space and the forces affecting it become non-existent.

.....

.....

9. The value of the acting force acting on a moving car by the car pedal is reduced to its half.

.....

.....

10. A group of balanced forces acts on an object.

.....

.....

Answers:

6. Both of them seem as if they are static relative to the passengers of both cars.
7. The car will come to rest after a certain period of time.
8. The satellite will continue rotating in its orbit around Earth for hundreds of years with the same speed.
9. The distance covered by the car will be reduced to the half of its value.
10. The state of the object does not change in both cases of rest or motion.

8 Compare between:

1. Balanced force and unbalanced force.

Balanced Force	Unbalanced Force

2. A big force acting on a car and a small force acting on a similar car.

The Big Force	The Small Force

3. Force and work.

Force	Work

Answers 8:

1.

Balanced Force	Unbalanced Force
It does not change the state of the body.	It changes the state of the body.

2.

The Big Force	The Small Force
It lets the car cut a longer distance.	It lets the car cut a shorter distance.

3.

Force	Work
A push or pull on an object that causes it to change its position.	Energy transferred by a force from an object to another.

4. The motion of a static body begins with a pulling force, and a motion is stopped by using an equal pulling force.

Motion of Static Body	Stop of Motion

5. The start of motion of a static body with a pushing force and the stopping of motion by using an equal pushing force.

Motion of Static Body	Stop of Motion

6. A type of motion that can be observed and another type of motion that cannot be observed.

The motion that can be observed	The motion that cannot be observed

Answers:

In the case of Pulling Force:

4.

Motion of Static Body	Stop of Motion
* A front force acts on the body. * Motion will be in the force direction.	* A back force acts on the body. * Motion will be in the opposite direction.

In the case of Pushing Force:

5.

Motion of Static Body	Stop of Motion
* A back force acts on the body. * Motion will be in the opposite direction.	* A front force acts on the body. * Motion will be in the force direction.

6.

The motion that can be observed	The motion that cannot be observed
* Motion of a car. * Relative motion.	* Motion of a satellite. * Both bodies move in the same direction with the same speed.

9 What is meant by...?

1. Gravitational force.
2. Law of Energy Conservation.
3. Motion.
4. Chemical energy.
5. Thermal energy.
6. Energy.
7. Gravitational potential energy.
8. Kinetic energy.
9. Force.
10. Satellite.
11. Energy source.
12. Resistance.
13. Fuel.
14. Friction.

Answers 9:

Answer by yourself.

Concept 2-2
Energy and Motion

Remember that:

* There are **many** forms of energy.
* In order for a body to **move**, the body must acquire **kinetic energy**.
* **Law of Conservation of Energy:**
* Energy is neither **created** nor **destroyed**, but it **can change** from one form to another
* As the skater begins the descent **down** the hill, potential energy is **lost** and kinetic energy (i.e. energy of motion) is **gained**.

Q 1: At what position is the skater not moving at all?

Answer:

* At the **top** of the ramp, before he starts moving **downwards**, the skateboarder has **zero** kinetic energy.

Q 2: At what position is the potential energy of the skater the highest?

Answer: At the **slope**.

Q 3: What is gravitational potential energy (GCSE)?

Answer:

* The energy an object **possesses** because of its **position** in a **gravitational field**.
* The energy **stored** in an object as the result of its **vertical** position or **height**.

Q 4: What are the two main types of potential energy?

Answer:

1. Gravitational potential energy.
2. Elastic potential energy.

Q 5: What type of energy does an ice skater possess?

Answer:

* The **moving** ice skater have **kinetic energy**, the energy of motion which is then transformed to **thermal energy** due to **friction**.
* The skater must do **work** in order to bring his arms in towards his body.

Remember that:

Q 6: What type of force causes an ice skater to move?

Answer: Friction.

Q 7: What is the change in energy forms, when a roller coaster goes upside down?

Answer:

Its motion is constantly shifting between potential and kinetic energy.

Q 8: What kind of energy does the roller coaster gain as it goes up?

Answer:

Kinetic energy.

Q 9: What force is at work during the running of the roller coaster?

Answer:

1. Friction.
2. Air resistance.
3. Gravitational potential force.

Q 10: What type of energy does the height of a roller coaster give to the cart?

Answer:

Potential energy.

Q 11: How does a roller coaster use mechanical energy?

Answer:

When the roller coaster is raised up to the highest point, mechanical energy conversion occurs.

The change in energy by the rubber band in children toys:

* As the rubber band unwinds, the stored potential energy changes into kinetic energy.
* The more potential energy that gets turned into kinetic energy, the further and faster your toy will go.

1 Choose the correct answer from the given answers:

1. In the figure shown in front of you, ...
   a. the ball has no energy
   b. the ball moves downwards
   c. the ball has energy
   d. the ball moves up
2. All the following have kinetic energy, except ..... .
   a. planks of wood on the ground
   b. a runner running in a race
   c. a moving car
   d. a boy riding a bike
3. The strength of the wind can be observed by looking at ..... .
   a. a static body
   b. moving water in the sea
   c. number of things moving
   d. a moving train
4. All of the following have potential energy, except a ..... .
   a. car on top of a bridge
   b. person standing on the ground
   c. coil spring stretched
   d. rubber band stretched
5. Energy stored in food is ..... energy.
   a. chemical b. thermal c. sound d. light
6. The light bulb produces ..... energy.
   a. light
   b. thermal
   c. sound
   d. light and thermal
7. A car battery has potential energy in the form of ..... energy.
   a. visible b. chemical c. light d. sound
8. What happens to the energy stored inside the human body? ..... .
   a. It gradually vanishes
   b. It gradually increases
   c. It transforms into another form
   d. It doesn't change

Answers 1:

1. c	2. a	3. c	4. b
5. a	6. d	7. b	8. c

9. The ball that falls from the top to the bottom has the greatest potential energy at ..... .
   a. the highest point
   b. the lowest point
   c. the mid-distance
   d. none of the above
10. A free body will ....., when acted upon by gravity.
   a. move upwards
   b. move downwards
   c. be at rest
   d. fall downwards with a constant speed
11. When the handle of a sharpener is rotated, ... energy is produced.
   a. potential
   b. kinetic
   c. sound
   d. light
12. Energy can be described by all of the following, except that ..... .
   a. it can be seen
   b. it can be stored
   c. it can be converted into another form
   d. it can be felt
13. Kicking the soccer ball with a certain force leads to all the following, except ..... .
   a. the movement of the ball
   b. changing the direction of the ball
   c. changing the size of the ball
   d. increasing the speed of the ball
14. Energy is important to us because ..... .
   a. it is not an essential part of anything that happens in the world
   b. it is not everything we do
   c. if it was not on our planet, everything would have stopped
   d. it does not change from one form to another

Answers:

9. a	10. b	11. b
12. a	13. c	14. c

15. ..... is the ability to do work.

a. Force
b. Energy
c. Work
d. Movement

16. ..... is/are the amount of force that causes the body to move.

a. Energy
b. Work
c. Movement
d. Pull and push forces together

17. The energy stored inside the body is ..... energy.

a. potential
b. kinetic
c. sound
d. light

18. The energy that leads to the movement of the body is ..... energy.

a. potential
b. kinetic
c. sound
d. light

19. When a book falls from the top to the bottom, the potential energy of the book ..... .

a. increases
b. decreases
c. remains stable
d. none of the above

20. When the ball goes up, the kinetic energy of the ball ..... .

a. increases
b. decreases
c. remains stable
d. none of the above

Answers:

15. b
16. b
17. a
18. b
19. b
20. b

2 Complete the following:

1. The ..... energy of the body reaches its maximum before it touches the surface of the earth during its fall.
2. The potential energy of a body increases as its height above the earth's surface ..... .
3. The ..... concept means that the body is ready to do work.
4. The ..... energy is gained by the body due to its motion.
5. The ..... energy includes the forms of chemical and gravitational energies.
6. The ..... energy includes the forms of light, thermal, electric and sound energies.
7. The ..... energy is the stored energy inside the body and it can change to other forms of energy.
8. The energy possessed by a body due to its motion is ..... energy.
9. The light bulb converts the stored chemical energy to both ..... and ..... energies.
10. The stored chemical energy changes into kinetic energy as in the car ..... .

Answers 2:

1. kinetic
2. increases
3. energy
4. kinetic
5. potential
6. kinetic
7. potential
8. kinetic
9. light, thermal
10. engine

11. When heating and operating the gas oven, the potential chemical energy is converted into ..... energy.

12. The energy stored in the rubber band and springs inside children's toys is ..... energy.

13. The car fuel may be natural gas, electricity or ..... .

14. The energy is neither created nor ....., but it can ..... from one form to another.

15. The chemical energy stored inside a battery changes to ..... energy that is transformed by the robot's hand into ..... energy that in turn opens the bottle cap.

16. When the roller coaster descends from top to bottom, its speed increases due to ..... .

17. Any body obtains kinetic energy during the ..... of other forms of energy.

18. At the top of the ramp, the roller coaster stores the ..... amount of the stored energy and when it slides, the ..... vanishes.

19. Battery-powered fan converts chemical energy into ..... energy.

Answers:

11. thermal
12. potential
13. gasoline
14. destroyed, change
15. electric, kinetic
16. gravity
17. change
18. maximum, potential energy
19. kinetic

3 Write the scientific term:

1. A type of force that acts on bodies on Earth, so that they move, change their locations or come to rest. (.....)
2. The ability to do work. (.....)
3. It can be stored, it cannot be seen and it can be changed from one form to another. (.....)
4. A form of energy that is stored inside bodies. (.....)
5. A form of energy that leads to body movement. (.....)
6. A form of energy possessed by a ball, when it is raised upwards. (.....)
7. The main form of energy that includes other forms of energy, such as chemical and gravitational energies. (.....)
8. The main form of energy that includes other forms of energy, such as light, electric, thermal and sound energies. (.....)

Answers 3:

1. Energy
2. Energy
3. Energy
4. Potential energy
5. Kinetic energy
6. Potential energy
7. Potential energy
8. Kinetic energy

9. A place inside the car in which the stored chemical energy changes to both kinetic and thermal energies. (.....)

10. Energy is neither created nor destroyed, but can change from one form to another. (.....)

11. A source of energy for cars that results from the decaying of plants and animals buried deep inside earth millions of years ago. (.....)

12. A form of energy that results from the stored chemical energy inside the car. (.....)

13. A game in which kinetic energy sometimes changes into potential energy and vice versa. (.....)

14. A type of winter sports in which potential energy is converted into kinetic energy and vice versa. (.....)

15. A form of energy possessed by a ball at its maximum height. (.....)

16. A form of energy that leads to the objects falling down to reach the earth's surface. (.....)

Answers:

9. Engine
10. Law of Energy Conservation
11. Gasoline
12. Kinetic energy
13. Roller coaster
14. Ice skating
15. Potential energy
16. Gravitational potential energy

4 Put a (✓) or a (✗) for the following statements:

1. The moving ice skater have kinetic energy. ( )
2. When the fan is running, the electrical energy is converted into potential energy. ( )
3. On the roller coaster, during the ascent, its motors run on electricity to make it reach its maximum height. ( )
4. The robot's hand converts electrical energy into kinetic energy. ( )
5. The energy is created, but it can be destroyed and can change from one form to another. ( )
6. Plants and animals decompose in ancient times and turn into oil or petroleum. ( )
7. Gasoline is one of the petroleum products, which is stored as thermal energy. ( )
8. The car engine converts the chemical energy stored in it into kinetic energy. ( )
9. The chemical potential energy contained in food is converted into kinetic energy that helps the person to move and to carry out his various activities. ( )
10. The car engine is a place where kinetic energy is converted into potential energy. ( )

Answers 4:

1. ✓	2. ✗	3. ✓	4. ✓
5. ✗	6. ✓	7. ✗	8. ✓
9. ✓	10. ✗		

11. The chemical potential energy stored in natural gas is converted into thermal energy and kinetic energy, when the car starts moving. ( )

12. When the rubber band is released in the children's toy, kinetic energy is produced. ( )

13. Potential energy is the energy stored in more than one form of energy. ( )

14. The energy that a body possesses due to its motion is chemical energy. ( )

15. During the fall of a raw egg, the gravitational potential energy increases its speed. ( )

16. The potential energy of a child sitting on a slide is converted into kinetic energy when he slides on it. ( )

17. The kinetic energy is a stored energy. ( )

18. Sound energy is a form of stored energy. ( )

19. Water at the top of a waterfall has potential energy. ( )

20. The kinetic energy of a body that is thrown upwards is lost at the moment of throwing. ( )

Answers:

11. ✓	12. ✓	13. ✓
14. ✗	15. ✓	16. ✓
17. ✗	18. ✗	19. ✓
20. ✗		

5 Correct the underlined words in the following statements:

1. The kinetic energy of a body falling down reaches its maximum when it reaches the maximum height.
2. The energy stored in any body is kinetic energy.
3. The ability to do work is force.
4. In the opposite figure, the ball has kinetic energy due to its height.

5. When a body falls from top to bottom, potential energy is converted into chemical energy.
6. When the roller coaster is pushed down the inclined surface, the potential energy increases.
7. The mechanical potential energy stored in natural gas is converted into thermal energy.

Answers 5:

1. immediately before touching the earth's surface
2. potential
3. energy
4. potential
5. kinetic
6. kinetic
7. chemical

6 Write the scientific reasons for each of the following:

1. A change in the speed or direction of a ball.

.....

.....

2. The sound, electrical and thermal energies are called kinetic energy.

.....

.....

3. Chemical energy, elastic potential energy, gravitational energy, and mechanical energy are called potential energy.

.....

.....

4. After the roller coaster reaches its maximum height, it moves downwards.

.....

.....

5. The electric lamp lights up while it is being supplied with electric power.

.....

.....

6. People generally eat food.

.....

.....

7. Basketball in the air has potential energy.

.....

.....

Answers 6:

1. Because an external force acts on it.
2. Because all of them has the ability to transfer.
3. Because all of them has the ability to do work.
4. Because of the gravitational potential force.
5. Because electric energy changes into light energy.
6. To change the energy needed to grow and move.
7. Due to its height.

7 What happens in the following cases...?

1. You let a ball fall from a height.

.....

.....

2. The roller coaster moves from bottom to top.

.....

.....

3. Pulling the roller coaster on an upward sloping surface.

.....

.....

4. Plants and animals decompose deep under the earth's surface.

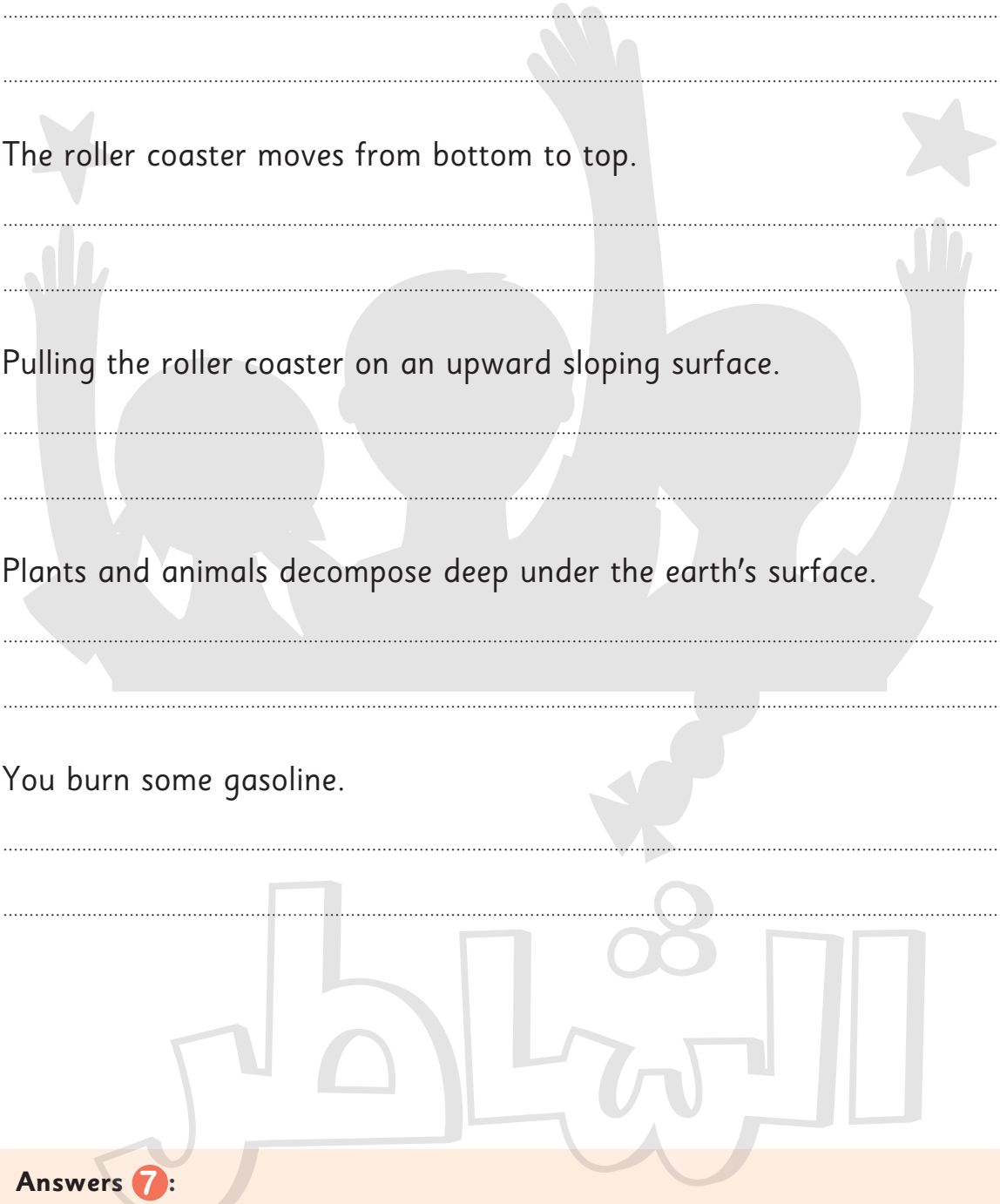
.....

.....

5. You burn some gasoline.

.....

.....



Answers 7:

1. Potential energy changes into kinetic energy.
2. Kinetic energy changes into potential energy.
3. Potential energy increases till it reaches its maximum.
4. Petroleum is formed.
5. Chemical energy changes into thermal energy.

8 Compare between:

1. Potential energy and kinetic energy.

Potential Energy	Kinetic Energy

2. Movement of the roller coaster from bottom to top and its movement from top to bottom.

Movement of the roller coaster from bottom to top	Movement of the roller coaster from top to bottom

3. A roller coaster and a battery-powered electric fan.

Roller Coaster	Battery-powered Electric Fan

Answers 8:

1.

Potential Energy	Kinetic Energy
It depends on height and gravity.	It depends on speed.

2.

Movement of the roller coaster from bottom to top	Movement of the roller coaster from top to bottom
Kinetic energy increases. Potential energy decreases.	Kinetic energy decreases. Potential energy increases.

3.

Roller Coaster	Battery-powered Electric Fan
It changes potential energy into kinetic energy and vice versa.	It changes electric energy into kinetic energy.

9 What is meant by...?

1. Work.
2. Energy.
3. Kinetic energy.
4. Potential energy.
5. The Law of Conservation of Energy.
6. The engine.
7. Electric power.
8. Gasoline.
9. Snow skating.
10. The roller coaster.

Answers 9:

Answer by yourself.

EL MOTAMYEZ - SCIENCE Questions Bank

FINAL REVISION

QUESTION 01 Choose The Correct Answer

1. When a panther chameleon stands on leaves of trees, the color of its scales changes into.....
   (a) white (b) **green** (c) blue (d) black
2. The fur of fennec fox protect it from.....
   (a) wind (b) rains (c) **hot weather** (d) cold weather
3. One of the behavioral adaptations that help the animal protect itself from enemies
   (a) **Camouflage** (b) extinction (c) immigration (d) reproduction
4. Bat is.....animal.
   (a) **nocturnal** (b) morning (c) Harmful (d) don't fly
5. ..... is covering body arctic fox
   (a) heavy hair (b) heavy skin (c) **thick fur** (d) many feathers
6. .....panting to lower her body temperature.
   (a) Whales (b) Lions (c) **Foxes** (d) Bats
7. Animals that live in a hot environment have ..... ears to help her, and allow heat to escape to be cool.
   (a) small (b) short (c) sharp (d) **long**
8. Fish extracts oxygen out of the water by .....
   (a) skin (b) **gills** (c) lungs (d) fins
9. which of the following can turn its head in all directions ?
   (a) lizards (b) **owls** (c) cats (d) snakes
10. When you determine a sweet or bitter taste, you have used .....
    (a) **the tongue** (b) the eye (c) the ear (d) the nose
11. The sense you use to identify the scent of a perfume.
    (a) taste (b) sight (c) **smell** (d) hearing
12. Your sensation of hot weather depends on sensory receptors in the .....
    (a) eyes (b) **skin** (c) nose (d) ears
13. What carries the message from your eyes to your brain when you see something...
    (a) **nerves** (b) muscle (c) veins (d) glands

14. The .....system helping us to translate messages that come from our surroundings, such as smells and sounds.
(a) respiratory (b) digestive (c) **nervous** (d) circulatory

15. ..... energy affects the sensory receptors in the eye causing vision.
(a) Magnetic (b) **Light** (c) Kinetic (d) Sound

16. The organ which is responsible for smelling sense
(a) ear (b) tongue (c) **nose** (d) eye

17. All the following components are from the nervous system except.....
(a) spinal cord (b) **heart** (c) nerves (d) brain

18. The .....is the main control center in your body.
(a) nerve (b) **brain** (c) spinal cord (d) sense

19. The system helps us translate messages that come from our surroundings, such as smells and sounds
(a) respiratory (b) digestive (c) **nervous** (d) circulatory

20. When can object comes suddenly close to your eyes..... occurs
(a) **reflex action** (b) respiration (c) sensory organ (d) sleeping

21. All the following living organisms have Tapetum Lucidum, except.....
(a) **snakes** (b) fishing cats (c) dogs (d) horses

22. Which type of energy does the sun provide Earth?
(a) **light** (b) gravity (c) chemical (d) mechanical

23. The organ responsible for the sense of sight
(a) the ear (b) the tongue (c) the nose (d) **the eye**

24. Animals can communicate with each other through.....
(a) **sounds and light** (b) talking (c) writing (d) reading

25. All of these materials are opaque except
(a) wood (b) human body (c) book (d) **water**

26. Which of the following is a source of light?
(a) the moon (b) our eyes (c) **fire** (d) a mirror

27. To detect the place of a table in a completely dark room, you can depend on
(a) sight sense (b) **touch sense** (c) taste sense (d) hearing sense

28. Each of the following is considered a source of light except .....
(a) the fire (b) the sun (c) the lamp (d) **the eye**

29 .....eyes have a thin membrane in the back of the eye.
(a) Human (b) **Tarsier monkey** (c) Snake (d) Bats

30 All of the following are transparent objects, except .....
(a) glass (b) water. (c) **paper** (d) air

31 it produces chemical reaction inside its body.....
(a) butterflies (b) **fireflies beetles** (c) house flies (d) owl

32 the mating season of humpback whales
(a) summer (b) **winter** (c) spring (d) fall

33 Both tarsier and owl, ...
(a) can swim (b) can fly (c) **are nocturnal animals** (d) same species

34 What happens to light when it hits a rough surface?
(a) **scattering** (b) reflection (c) absorption (d) refraction

35 Which of the following organs are working together for seeing different objects?
(a) Nose and brain (b) **Eyes and brain** (c) Ears and brain (d) Tongue and brain

36 There is a tapetum lucidum in all of the following except .....
(a) the horse (b) the cat (c) **the human** (d) the dog

37 All the following considered as a source of light except .....
(a) sun (b) candle (c) fire (d) **moon**

38 Which of the following allows the light to pass through it? .....
(a) A rock (b) Moon (c) Wood (d) **Glass**

39 What property of light helps you see yourself in a mirror?
(a) refraction (b) **reflection** (c) absorption (d) relativity

40 Reading and writing are common types of communication between .....
(a) **human** (b) animals (c) birds (d) plants

41 Raising the thumb up or lower it down is a kind of .....
(a) colors (b) **codes** (c) waves (d) lights

42 Bats use their ..... To get information about their surroundings in the dark
(a) eyes (b) tongue (c) **ears** (d) hands

43 The force that slows down (decreases) the speed is called .....
(a) push (b) gravity (c) **friction** (d) pull

44 Senses organs collect information and send signals to .....for processing and understanding
(a) stomach (b) **brain** (c) hands (d) ear

45 When an object is in motion, this means that its .....changes
(a) color (b) shape (c) size (d) **position**

46 When you move something towards you, this represents.....
(a) pushing force (b) light energy (c) **pulling force** (d) sound energy

47 All the following represent the pushing force except to .....
(a) kick a ball (b) press on switch (c) close drawer (d) **lifting up a bag.**

48 When you sit on a chair, the force of gravity is .....and holding you in the chair
(a) pull you upward (b) **pull you downward** (c) push you upward (d) push you downward

49 Push or pull actions are considered as types of .....
(a) **force** (b) device (c) energy (d) adaptation

50 The force that pulls the objects down toward the center of the earth is ...
(a) **gravity** (b) pushing (c) pulling (d) wind

51 The force that occurs when an object rubs against another object is called.....
(a) **friction** (b) gravity (c) push (d) pull

52 The airbag is made of.....
(a) carton (b) **nylon** (c) rubber (d) cotton

53 Kinetic energy isn't affected by the.....
(a) mass (b) speed (c) **color** (d) weight

54 All of the following are examples of pulling force, except .....
(a) **kicking a ball.** (b) pulling the rope.
(c) opening the desk's drawer. (d) lifting up your bag.

55 When a body moves forward, the change that occurs is in .....
(a) **the position of the body.** (b) the Earth's gravity.
(c) the size of the body. (d) the mass of the body.

56 Objects need a force to move, this force is represented in (called) .....
(a) pushing only (b) pulling only
(c) **pushing and pulling together** (d) the Earth gravity only

57 When a ball stands on the ground without moving, the forces acting on it are .....

ⓐ **balanced.** ⓑ unbalanced ⓒ push it up ⓓ not equal

58 Which of the following can store energy ?
ⓐ **battery** ⓑ wire ⓒ plastic ⓓ rubber

59 The energy gained by a ball when it falls from above is .....
ⓐ Potential energy ⓑ **kinetic energy** ⓒ light energy ⓓ chemical energy

60 When an object moves down a ramp, its stored potential energy .....
ⓐ increases ⓑ doesn't change
ⓒ changes to a less active form of energy ⓓ **changes to a more active form of energy**

61 The energy that is stored in an object due to its position, is known as .....
ⓐ kinetic ⓑ **potential** ⓒ electric ⓓ chemical

62 Chemical energy stored in batteries is considered a form of ..... energy
ⓐ **potential** ⓑ kinetic ⓒ heat ⓓ light

63 Chemical energy can be stored in .....
ⓐ food only ⓑ battery only ⓒ television and food ⓓ **food and battery**

64 The force that causes an object to move a distance is called .....
ⓐ **work** ⓑ potential ⓒ gravity ⓓ pull

65 The ability to do work is .....
ⓐ **energy** ⓑ force ⓒ push ⓓ pull

66 The speed of a car that travels 200 meter in 2 second is.....m/s
ⓐ 20 ⓑ 40 ⓒ **100** ⓓ 200

67 How can we calculate the speed of an object ?
ⓐ **distance ÷ time** ⓑ distance + time
ⓒ distance x time ⓓ distance - time

68 Which of the following is a measuring unit of speed?
ⓐ hr/km ⓑ sec/m ⓒ kg/sec ⓓ **m/sec**

QUESTION 02 Complete using words between brackets

1 .....causes many problems for the lungs
(Breathing – pollution)

2 Fish breathe ..... gas which dissolved in water (Oxygen - carbon dioxide)

3 ..... mix and grind food inside the mouth
(Teeth only - Teeth and tongue)

4. Mangroves trees grow in.....(Fresh water - salt water)
5. During exhalation,..... gas comes out of the lung.
(Oxygen -Carbon dioxide)
6. The lungs are one of the important organs in the .....system.
(Respiratory - Digestive)
7. The diaphragm rises up during the .....operation
(inhalation - exhalation)
8. A tube with muscles that help push food into the stomach, called.....
(Trachea – esophagus)
9. 🕮 The fatty layer under the animal's skin to warm it is considered a.....adaptation (structural – behavioral)
10. An animal that can escape from enemies because of the length of its hind leg. (Arctic fox - jerboa)
11. The dolphin can locate its prey through its sense.....(hearing - sight)
12. The eyes send messages to ..... through the nerves.(brain-spinal cord)
13. Sensory receptors send a message.....
(from the brain to the muscles- from the sensory organs to the brain)
14. The time that the body takes to receive information from the environment and (reaction time-reflex action)
15. The echo sound feature depends on .....(Hearing sense - Sight sense)
16. The skin is an important organ of the system... (Respiratory - Nervous)
17. The spinal cord is an important organ of the .....system
(Nervous - Digestive)
18. The car slow down its speed when it runs out of fuel, as a result of .....
(tension – friction)
19. The (balanced – unbalanced) forces cause the object to move .
20. The force that pulls things down is ..... (friction – gravity)
21. When a person push car forward, his body begins to sweat heavily because his body ..... his stored energy (increase – consumes)
22. The gas oven converts ..... energy stored in the natural gas into heat energy (chemical - electrical)
23. During a car crash, the ..... is inflated with a gas to provide a soft cushion.(seatbelt - airbag)

24 When objects crash with each other, ... transfers between them. (distance - energy)

25 As a result of hitting a ball with a bat, the .....of the ball will change (direction – mass)

26 Speed is a..... quantity.(physical- chemical)

27 Fast objects cause..... dangers than the slow objects.(less- more)

28 The big trucks need..... to move. (big engines -small engines)

29 When the car fuel is completely runs out, the car's..... becomes zero. (mass - speed)

30 The car needs..... to move.(fuel - water)

31 If Noor travels with her bicycle a distance of 10 km in two hours, then she is moving at a speed of (10 - 5) km/hr

32 Cats' eyes are adapted to night vision due to the presence of ..... Behind their eyes (Tapetum lucidum - small eyes)

33 When light falls on an object and the light.....,so we can see this object. (absorb - reflects)

34 The eye sends messages to ..... through the nerves. (brain - spinal cord)

35 When light is absorbed by an opaque object, ... is formed. (tapetum lucidum – shadow)

36 ..... is from the opaque objects. (Carton - Glass)

37 Tarsier Monkey can turn its (eyes-head) like owls.

38 Light rays travel in the form of (curved - straight) lines in air.

39 Bees can communicate with each other by.....(dancing - smell)

40 The songs of Hamp back whales have a.....pitch in summer. (higher – lower)

41 From the organs that we can use to end or receive the code (eye – heart)

42 ..... are forms of codes(thumb up and down - swimming)

43 Humpback whales communicate with each other through the .....sense (hearing - smelling)

QUESTION 03 Put (√) or (χ) or the following statements:

1. The ears of arctic fox are longer than those of fennec fox ( )
2. All type of sharks live in fresh water. ( )
3. Foxes have a strong sense of hearing. ( )
4. The respiratory system is responsible for the entry of air into the body. ( )
5. Exhaled air is loaded with oxygen ( )
6. When running and making an effort, the number of breathing times decreases . ( )
7. As the speed increases, the amount of fuel used decreases. ( )
8. The feet of the penguin do not freeze because they have a layer of fat. ( )
9. Man cannot restore the ecosystem with any way ( )
10. The migration of birds to search for food is considered a form of behavioural adaptation ( )
11. Some animals that live in cold have a long ears; To help it to maintain the body temperature ( )
12. Plants need long roots that extend deep into the soil to survive in the water scarce ( )
13. Animals digging trenches is a form of structural adaptation ( )
14. The mass of a moving body affects its speed. ( )
15. After collision, the air bag deflates the same speed as it inflates ( )
16. The sense of hearing of dolphin is stronger than that of human ( )
17. The ear is the sense organ responsible for seeing objects ( )
18. The brain responsible for processing information ( )
19. Bats use their sense of smell to avoid dangers ( )
20. Snakes have the ability to rotate their heads in all directions ( )
21. A person can identify food which is not good through the sense of hearing ( )
22. Bees can know the sweet taste by their sense of smell ( )
23. The nervous system works separately from the five senses. ( )
24. The skin is the sensory organ that makes you feel the smooth of the cloth ( )

25. Nocturnal animals have eyes larger than human ( )
26. Cats have excellent night vision, while snakes and bats are not ( )
27. Tarsier cannot move its big eyes in their sockets like owl ( )
28. Wood is a transparent object that allows light to pass through it ( )
29. If I can see my face clearly on a surface, this means that it is a smooth, shiny surface ( )
30. honeybees use movement to communicate with each others ( )
31. The human eyes can see in the dark clearly. ( )
32. Tarsier Monkey and owl have poor night vision. ( )
33. The moon is a source of light ( )
34. The wooden board reflects light less than the mirror ( )
35. Human has a tapetum lucidum in his eye to help him see at night ( )
36. painted surface reflects light in one direction ( )
37. Some animals can see at night, such as a wild cat ( )
38. shadow formed when light hits transparent object ( )
39. Both humans and animals need a source of light to see ( )
40. The opaque materials do not let the light pass through ( )
41. Tapetum lucidum of fishing cat considered as a structural adaptation. ( )
42. Fishing cat has a mirror-like membrane on the back of the eye ( )
43. Whales sing with a high pitched sound during the mating season ( )
44. Humpback whales can sing under water ( )
45. In order to translate the code, the brain must identify it ( )
46. Animals can use more than one senses to communicate with each other ( )
47. Bees can know the sweet taste by their sense of smell ( )
48. Both Morse code and humpback whale can use sound energy in communication ( )
49. Bats use their sense of smell to avoid dangers ( )
50. Air resists the motion of a car. ( )
51. Drivers should drive as fast as possible to avoid accidents ( )
52. The stopping object can't move until a force acts on it ( )

53. Gravitational force is an upward pulling force ( )
54. When a pen falls down from your hand, the acting force is the gravity force ( )
55. When the static body is affected by balanced force, the body moves ( )
56. The seesaw moves up and down because the forces that act on it are unbalanced ( )
57. When the position of the body changes from a fixed point, the body moves ( )
58. The force that slows down or decreases the speed of an object is gravity. ( )
59. Gravity pulls objects towards the center of the Earth. ( )
60. Any moving object has a form of energy known as kinetic energy. ( )
61. When the roller coaster slides down fast, its kinetic energy increases ( )
62. The moving objects only have energy, while the objects that don't move have no energy ( )
63. When you kick a ball, kinetic energy is produced ( )
64. As the height of an object from the Earth's surface increases, its potential energy decreases ( )
65. In the electric fan, the kinetic energy is converted into electric energy. ( )
66. Energy is neither destroyed nor created from nothing. ( )
67. A static ball moves on the ground if it is affected by a force. ( )
68. The chemical energy in a battery can be converted into electrical energy. ( )
69. Energy is the ability to do work ( )
70. Seatbelt is one of safety equipment in cars. ( )
71. The high-speed moving objects face less dangers than the slower objects. ( )

QUESTION 04 Complete the following sentences

1. Panther chameleon puffs up its body with air for defense which is considered _..... adaptation
2. Fish breath _..... gas which dissolved in water .

3. The system that digests food to produce energy is .....
4. Chameleons can move each of their eyes in a different direction, this adaptation helps them to .....
5. Leaves of plants that float above the surface of the water are so wide that they can .....
6. Animals that have a thick layer of fat under the skin are animals that live in a .....environment
7. A tube with muscles that helps to push food into the stomach, is called _.....
8. 📖 The dolphin has sharp sense of.....
9. The eye sends messages to..... through the nerves.
10. The spinal cord is an important organ of the..... system.
11. 📖 The form energy that can be seen is.....energy.
12. Air and water are .....materials and you can see things through them
13. Some animals have the ability to see in the dark because of_.....
14. Smooth surfaces reflect light in.....direction.
15. I saw an eye shining in the dark, this animal could be .....
16. You can see the objects due to the..... of light rays to the eyes
17. The eye pupil of the owl and cats is ..... than the eye pupil of the human
18. ....., ...and .....are sources of light
19. 📖 Fireflies communicate with each other by producing a.....
20. Morse code is way of communication depending first on .....sense
21. The echo is turned in to vibrations in the .....that is good by blind people .
22. The winter months are considered as the .....season for humpback whales.
23. A group of ants sends .....message to communicate with each other.

24. Bats cannot see in the dark, but they hunt their prey at night because of.....

25. Both fireflies and honey bees use the sense of .....in their communication .

26. 📖 If the mass of an object decreases this mean that its kinetic energy .....

27. The energy which is stored in a ball at the top of a hill is.....

28. 📖 Airbags absorbs the .....of the car during collision..

29. 📖 When objects collide with each other, ...is transferred between them.

QUESTION 05 Write the scientific term

1. A type of adaptation that helps an animal to hide ( )
2. A liquid substance in the mouth that moistens food and begins to break it down ( )
3. A change in the body structure of a living organism to survive ( )
4. A system that helps in breaking down food into smaller parts ( )
5. A process of breaking down food into smaller parts that the body cells absorb and use to get energy and growth ( )
6. A change in the behaviors or acts of a living organism to survive ( )
7. A gas presents in air that living organisms breath during respiration process ( )
8. A group of organs that work together to perform a specific job ( )
9. The first organ in digestive system ( )
10. A feature in the bull shark, in which the upper surface of its body is darker than lower surface ( )
11. 📖 The object which allows light to pass through it ( )
12. They are materials reflect the light rays in one direction ( )
13. A type of surface that reflects light in different direction. ( )

14. An animal can not move its eyes in their sockets ( )
15. it is a visible form of energy that travels in form of waves ( )
16. A mirror like a membrane at the back of the fishing cat's eye . ( )
17. A tool used by the man works as the eyes of fishing cats at night. ( )
18. Sense organ that can detect light energy ( )
19. The force that pulls objects toward the center of the earth . ( )
20. It is a push or pull that is applied to an object cause it to change its position ( )
21. it is the ability to do work ( )
22. it is a force that causes an object to move a distance ( )
23. The energy that the object gains due to its motion ( )
24. The form of energy that increases when the speed of an object increases ( )
25. The stored energy in an object due to its position ( )
26. The process in which two objects or more crash into each other and includes an energy ( )
27. Safety equipment used to prevent car passengers from moving forward when the car stops suddenly ( )
28. safety equipment provide a soft cushion, when it inflates automatically with a gas during collision ( )
29. A heavy steel ball thot swings on a cable and it is used in destruction of buildings parts ( )

QUESTION 06 Give reason..... ?

1. Owls can hunt during the night
.....
2. You can see an object placed behind a glass cup
.....
3. The eyes of human do not glow like dog cats in the dark
.....

4. fishing cat eyes glow in the dark
.....
5. nocturnal animals can see in the dark
.....
6. when light fall on object we can see it
.....
7. moon is not considered as a source of light
.....
8. Humans use reading, writing and speaking
.....
9. Some Animals use echolocation
.....

QUESTION 07 What happened if .... ?

1. if a firefly wants to attract a mate to reproduce?
.....
2. A danger becomes close to the colony of ants.
.....
3. The sound waves produced by a bat hits an insect.
.....
4. when the mass of a moving body increases, as it moves down wards along a ramp.
.....

QUESTION 08 cross the odd word

1. Penguin - Polar bear - Snake - Arctic fox
2. Cat – Dog – Deer - Bat
3. Wood - Glass cup – Book - Wall
4. Lamp-Fire-Moon-Candle
5. Bats – fireflies - blind person's cane - dolphins
6. Sound energy - light energy - thermal energy - chemical energy

QUESTION 09 Match

1

(A)		(B)	
1	Sun	a	reflect light rays in one direction
2	Shadow	b	is formed when the light strikes a human body.
3	Moon	c	is the main source of energy
4	Smooth	d	is shiny but is not considered a source of energy

2

(A)		(B)	
1	Gravity	a	the energy stored inside the body.
2	Friction	b	the force that pulls things downwards.
3	Speed	c	a force that arises between the surfaces of two contacted bodies.
4	Potential energy	d	the distance covered per time unit.

3

(A)		(B)	
1	Carbon dioxide	a	process that diaphragm expands and moves up
2	Exhalation	b	the process of pushing air in and out of the body
		c	is a gas that is produced by respiration process

4

(A)		(B)	
1	Jerboa	a	it depends on the body's sense of heat for predation .
2	Snake	b	it depends on the echo of the sound in locating the prey .
3	Bat	c	it depends on its hind legs to jump .

5

(A)		(B)	
1	Tapetum lucidum	a	it is a common organ in the digestive and respiratory systems.
2	Pharynx	b	a muscle that has an important role in the respiration.
		c	a structural adaptation in the eye provides some animal a better vision at night

6

(A)		(B)	
1	Light	a	an animal with a bowl-like face.
2	Owl	b	it is the visible form of energy that is transmitted in the form of waves.
		c	it depends on its hind legs to jump.

7

(A)		(B)	
1	Camouflage	a	it helps us to see.
2	Smell	b	a type of adaptation that helps an animals to hide.
		c	ants use it to communicate.

8

(A)		(B)	
1	Food	a	it can be transformed into potential energy
2	kinetic energy	b	it is a source of energy for humans
3	potential energy	c	it is the stored energy in an object

QUESTION 10 Answer the following questions

1. Give two examples for Objects that are considered as sources of light.

.....

2. Give one example for an nocturnal animal that depend on its sense of heat to get their prey

.....

3. Butterflies that have a color like the color of the tree they live on are called this phenomenon

.....

4. Rabbits have long and strong hind legs that help them to jump quickly and escape when danger determine the type of adaptation

.....

5. some dogs live in a cold environment, while some live in a hot environment. In your opinion, which one has thick fur, the cold environment or the hot environment? And why?

.....

6. A dolphin can locate living organisms and things under the surface of the water and explain the feature that helps the dolphin to do .

.....

7. When you sit on the chair without moving. What is the name of the force that pulls you downward?

.....

8. Mention some of the safety equipment in the car?

.....

9. Find the speed of a runner, if you know that he covers 400 meters in 8 seconds.

.....

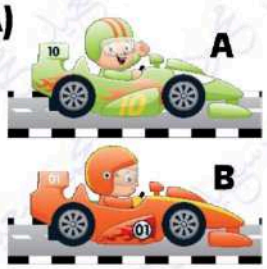
10. A train travels from Cairo to Alexandria in a distance of 200 kilometres in 2 hours, Find its speed

.....

11. Calculate the speed of a train that. covers 600 km in a time of 6 hours.

.....

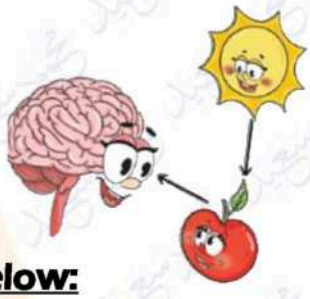
12 **if the two Cars moved at the same time for 20 seconds, car (A) covered a distance of 100 meters, while car (B) covered a distance of 300 meters. Which of the two cars has a higher speed?**



.....

.....

13 **Complete after noticing the following figure - What happens until you see this apple?**



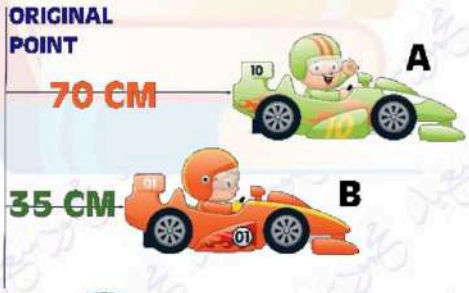
- The light falls on the ..... then it is reflected on the eyes – so the eyes transmit the message to ....._then he interprets it and translates it, so we see the apple.

14 **Look at the following figures, then answer the questions below:**

a. The surface in figure (a) is .....Because .....
b. The surface in figure (b) is .....Because.....
c. In the previous two figures, the falling and reflected rays show that light travels in .....lines.
d. The surface in figure (a) may be .....
(plastic - wood - **mirror** - cloth)

15 Which of these cars is affected by greater force ? (give reason for your answer)

.....



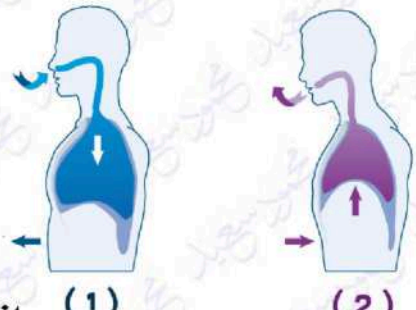
16 Note the following two figures.

a. Identify the name of each of the two processes in Figures 1, 2: -

.....

b. What happens to the diaphragm in Figure (1).

.....



انتهت الأسئلة مع اطيب الامنيات بالنجاح والتوفيق

الصف الرابع الابتدائي ٢٠٢٣

بنك أسئلة

المتميز

أ/ محمود سعيد

Model Answers

SCIENCE

Final Revision

4 الصف الرابع

By

Mrs . Amira Ahmed

cartoon science

El.Motamyez.School

يمكنكم الحصول على المذكرات والاختبارات من خلال مسح رمز الـ QR Code
أو من خلال صفحة "المتميز - أ/ محمود سعيد".

EL MOTAMYEZ - SCIENCE Questions Bank

FINAL REVISION

QUESTION 01 Choose The Correct Answer

1. When a panther chameleon stands on leaves of trees, the color of its scales changes into.....
   (a) white (b) **green** (c) blue (d) black
2. The fur of fennec fox protect it from.....
   (a) wind (b) rains (c) **hot weather** (d) cold weather
3. One of the behavioral adaptations that help the animal protect itself from enemies
   (a) **Camouflage** (b) extinction (c) immigration (d) reproduction
4. Bat is.....animal.
   (a) **nocturnal** (b) morning (c) Harmful (d) don't fly
5. ..... is covering body arctic fox
   (a) heavy hair (b) heavy skin (c) **thick fur** (d) many feathers
6. .....panting to lower her body temperature.
   (a) Whales (b) Lions (c) **Foxes** (d) Bats
7. Animals that live in a hot environment have ..... ears to help her, and allow heat to escape to be cool.
   (a) small (b) short (c) sharp (d) **long**
8. Fish extracts oxygen out of the water by .....
   (a) skin (b) **gills** (c) lungs (d) fins
9. which of the following can turn its head in all directions ?
   (a) lizards (b) **owls** (c) cats (d) snakes
10. When you determine a sweet or bitter taste, you have used .....
    (a) **the tongue** (b) the eye (c) the ear (d) the nose
11. The sense you use to identify the scent of a perfume.
    (a) taste (b) sight (c) **smell** (d) hearing
12. Your sensation of hot weather depends on sensory receptors in the .....
    (a) eyes (b) **skin** (c) nose (d) ears
13. What carries the message from your eyes to your brain when you see something...
    (a) **nerves** (b) muscle (c) veins (d) glands

14. The .....system helping us to translate messages that come from our surroundings, such as smells and sounds.
(a) respiratory (b) digestive (c) **nervous** (d) circulatory

15. ..... energy affects the sensory receptors in the eye causing vision.
(a) Magnetic (b) **Light** (c) Kinetic (d) Sound

16. The organ which is responsible for smelling sense
(a) ear (b) tongue (c) **nose** (d) eye

17. All the following components are from the nervous system except.....
(a) spinal cord (b) **heart** (c) nerves (d) brain

18. The .....is the main control center in your body.
(a) nerve (b) **brain** (c) spinal cord (d) sense

19. The system helps us translate messages that come from our surroundings, such as smells and sounds
(a) respiratory (b) digestive (c) **nervous** (d) circulatory

20. When can object comes suddenly close to your eyes..... occurs
(a) **reflex action** (b) respiration (c) sensory organ (d) sleeping

21. All the following living organisms have Tapetum Lucidum, except.....
(a) **snakes** (b) fishing cats (c) dogs (d) horses

22. Which type of energy does the sun provide Earth?
(a) **light** (b) gravity (c) chemical (d) mechanical

23. The organ responsible for the sense of sight
(a) the ear (b) the tongue (c) the nose (d) **the eye**

24. Animals can communicate with each other through.....
(a) **sounds and light** (b) talking (c) writing (d) reading

25. All of these materials are opaque except
(a) wood (b) human body (c) book (d) **water**

26. Which of the following is a source of light?
(a) the moon (b) our eyes (c) **fire** (d) a mirror

27. To detect the place of a table in a completely dark room, you can depend on
(a) sight sense (b) **touch sense** (c) taste sense (d) hearing sense

28. Each of the following is considered a source of light except .....
(a) the fire (b) the sun (c) the lamp (d) **the eye**

29 .....eyes have a thin membrane in the back of the eye.
(a) Human (b) **Tarsier monkey** (c) Snake (d) Bats

30 All of the following are transparent objects, except .....
(a) glass (b) water. (c) **paper** (d) air

31 it produces chemical reaction inside its body.....
(a) butterflies (b) **fireflies beetles** (c) house flies (d) owl

32 the mating season of humpback whales
(a) summer (b) **winter** (c) spring (d) fall

33 Both tarsier and owl, ...
(a) can swim (b) can fly (c) **are nocturnal animals** (d) same species

34 What happens to light when it hits a rough surface?
(a) **scattering** (b) reflection (c) absorption (d) refraction

35 Which of the following organs are working together for seeing different objects?
(a) Nose and brain (b) **Eyes and brain** (c) Ears and brain (d) Tongue and brain

36 There is a tapetum lucidum in all of the following except .....
(a) the horse (b) the cat (c) **the human** (d) the dog

37 All the following considered as a source of light except .....
(a) sun (b) candle (c) fire (d) **moon**

38 Which of the following allows the light to pass through it? .....
(a) A rock (b) Moon (c) Wood (d) **Glass**

39 What property of light helps you see yourself in a mirror?
(a) refraction (b) **reflection** (c) absorption (d) relativity

40 Reading and writing are common types of communication between .....
(a) **human** (b) animals (c) birds (d) plants

41 Raising the thumb up or lower it down is a kind of .....
(a) colors (b) **codes** (c) waves (d) lights

42 Bats use their ..... To get information about their surroundings in the dark
(a) eyes (b) tongue (c) **ears** (d) hands

43 The force that slows down (decreases) the speed is called .....
(a) push (b) gravity (c) **friction** (d) pull

44 Senses organs collect information and send signals to .....for processing and understanding
(a) stomach (b) **brain** (c) hands (d) ear

45 When an object is in motion, this means that its .....changes
(a) color (b) shape (c) size (d) **position**

46 When you move something towards you, this represents.....
(a) pushing force (b) light energy (c) **pulling force** (d) sound energy

47 All the following represent the pushing force except to .....
(a) kick a ball (b) press on switch (c) close drawer (d) **lifting up a bag.**

48 When you sit on a chair, the force of gravity is .....and holding you in the chair
(a) pull you upward (b) **pull you downward** (c) push you upward (d) push you downward

49 Push or pull actions are considered as types of .....
(a) **force** (b) device (c) energy (d) adaptation

50 The force that pulls the objects down toward the center of the earth is ...
(a) **gravity** (b) pushing (c) pulling (d) wind

51 The force that occurs when an object rubs against another object is called.....
(a) **friction** (b) gravity (c) push (d) pull

52 The airbag is made of.....
(a) carton (b) **nylon** (c) rubber (d) cotton

53 Kinetic energy isn't affected by the.....
(a) mass (b) speed (c) **color** (d) weight

54 All of the following are examples of pulling force, <u>except</u> .....
(a) **kicking a ball.** (b) pulling the rope.
(c) opening the desk's drawer. (d) lifting up your bag.

55 When a body moves forward, the change that occurs is in .....
(a) **the position of the body.** (b) the Earth's gravity.
(c) the size of the body. (d) the mass of the body.

56 Objects need a force to move, this force is represented in (called) .....
(a) pushing only (b) pulling only
(c) **pushing and pulling together** (d) the Earth gravity only

57 When a ball stands on the ground without moving, the forces acting on it are .....

ⓐ **balanced.** ⓑ unbalanced ⓒ push it up ⓓ not equal

58 Which of the following can store energy ?
ⓐ **battery** ⓑ wire ⓒ plastic ⓓ rubber

59 The energy gained by a ball when it falls from above is .....
ⓐ Potential energy ⓑ **kinetic energy** ⓒ light energy ⓓ chemical energy

60 When an object moves down a ramp, its stored potential energy .....
ⓐ increases ⓑ doesn't change
ⓒ changes to a less active form of energy ⓓ **changes to a more active form of energy**

61 The energy that is stored in an object due to its position, is known as .....
ⓐ kinetic ⓑ **potential** ⓒ electric ⓓ chemical

62 Chemical energy stored in batteries is considered a form of ..... energy
ⓐ **potential** ⓑ kinetic ⓒ heat ⓓ light

63 Chemical energy can be stored in .....
ⓐ food only ⓑ battery only ⓒ television and food ⓓ **food and battery**

64 The force that causes an object to move a distance is called .....
ⓐ **work** ⓑ potential ⓒ gravity ⓓ pull

65 The ability to do work is .....
ⓐ **energy** ⓑ force ⓒ push ⓓ pull

66 The speed of a car that travels 200 meter in 2 second is.....m/s
ⓐ 20 ⓑ 40 ⓒ **100** ⓓ 200

67 How can we calculate the speed of an object ?
ⓐ **distance ÷ time** ⓑ distance + time
ⓒ distance x time ⓓ distance - time

68 Which of the following is a measuring unit of speed?
ⓐ hr/km ⓑ sec/m ⓒ kg/sec ⓓ **m/sec**

QUESTION 02 Complete using words between brackets

1 .....causes many problems for the lungs
(Breathing – **pollution**)

2 Fish breathe ..... gas which dissolved in water (**Oxygen** - carbon dioxide)

3 ..... mix and grind food inside the mouth
(Teeth only - **Teeth and tongue**)

4. Mangroves trees grow in.....(Fresh water - **salt water)**
5. During exhalation,..... gas comes out of the lung.
(Oxygen -**Carbon dioxide)**
6. The lungs are one of the important organs in the .....system.
(**Respiratory** - Digestive)
7. The diaphragm rises up during the .....operation
(inhalation - **exhalation)**
8. A tube with muscles that help push food into the stomach, called.....
(Trachea – **esophagus**)
9. 📖 The fatty layer under the animal's skin to warm it is considered a.....adaptation (**structural** – behavioral)
10. An animal that can escape from enemies because of the length of its hind leg. (Arctic fox - **jerboa**)
11. The dolphin can locate its prey through its sense.....(**hearing** - sight)
12. The eyes send messages to ..... through the nerves.(**brain**-spinal cord)
13. Sensory receptors send a message.....
(from the brain to the muscles- **from the sensory organs to the brain**)
14. The time that the body takes to receive information from the environment and (**reaction time**-reflex action)
15. The echo sound feature depends on .....(**Hearing sense** - Sight sense)
16. The skin is an important organ of the system... (Respiratory - **Nervous**)
17. The spinal cord is an important organ of the .....system
(**Nervous -** Digestive)
18. The car slow down its speed when it runs out of fuel, as a result of .....
(tension – **friction**)
19. The (balanced – **unbalanced**) forces cause the object to move .
20. The force that pulls things down is ..... (friction – **gravity**)
21. When a person push car forward, his body begins to sweat heavily because his body ..... his stored energy (increase – **consumes**)
22. The gas oven converts ..... energy stored in the natural gas into heat energy (**chemical** - electrical)
23. During a car crash, the ..... is inflated with a gas to provide a soft cushion.(seatbelt - **airbag**)

24. When objects crash with each other, ... transfers between them. (distance - **energy**)
25. As a result of hitting a ball with a bat, the .....of the ball will change (**direction** – mass)
26. Speed is a..... quantity.(**physical**- chemical)
27. Fast objects cause..... dangers than the slow objects.(less- **more**)
28. The big trucks need..... to move. (**big engines** -small engines)
29. When the car fuel is completely runs out, the car's..... becomes zero. (mass - **speed**)
30. The car needs..... to move.(**fuel** - water)
31. If Noor travels with her bicycle a distance of 10 km in two hours, then she is moving at a speed of (10 - **5**) km/hr
32. Cats' eyes are adapted to night vision due to the presence of ..... Behind their eyes (**Tapetum lucidum** - small eyes)
33. When light falls on an object and the light.....,so we can see this object. (absorb - **reflects**)
34. The eye sends messages to ..... through the nerves. (**brain** - spinal cord)
35. When light is absorbed by an opaque object, ... is formed. (tapetum lucidum – **shadow**)
36. ..... is from the opaque objects. (**Carton** - Glass)
37. Tarsier Monkey can turn its (eyes-**head**) like owls.
38. Light rays travel in the form of (curved - **straight**) lines in air.
39. Bees can communicate with each other by.....(**dancing** - smell)
40. The songs of Hamp back whales have a.....pitch in summer. (higher – **lower)**
41. From the organs that we can use to end or receive the code (**eye** – heart)
42. ..... are forms of codes(**thumb up and down** - swimming)
43. Humpback whales communicate with each other through the .....sense (**hearing** - smelling)

QUESTION 03 Put (√) or (x) or the following statements:

1. The ears of arctic fox are longer than those of fennec fox ✗
2. All type of sharks live in fresh water. ✗
3. Foxes have a strong sense of hearing. ✓
4. The respiratory system is responsible for the entry of air into the body. ✓
5. Exhaled air is loaded with oxygen ✗
6. When running and making an effort, the number of breathing times decreases . ✗
7. As the speed increases, the amount of fuel used decreases. ✗
8. The feet of the penguin do not freeze because they have a layer of fat. ✗
9. Man cannot restore the ecosystem with any way ✗
10. The migration of birds to search for food is considered a form of behavioural adaptation ✓
11. Some animals that live in cold have a long ears; To help it to maintain the body temperature ✗
12. Plants need long roots that extend deep into the soil to survive in the water scarce ✓
13. Animals digging trenches is a form of structural adaptation ✗
14. The mass of a moving body affects its speed. ✓
15. After collision, the air bag deflates the same speed as it inflates ✓
16. The sense of hearing of dolphin is stronger than that of human ✓
17. The ear is the sense organ responsible for seeing objects ✗
18. The brain responsible for processing information ✓
19. Bats use their sense of smell to avoid dangers ✗
20. Snakes have the ability to rotate their heads in all directions ✗
21. A person can identify food which is not good through the sense of hearing ✗
22. Bees can know the sweet taste by their sense of smell ✗
23. The nervous system works separately from the five senses. ✗
24. The skin is the sensory organ that makes you feel the smooth of the cloth ✓

25. Nocturnal animals have eyes larger than human ✓
26. Cats have excellent night vision, while snakes and bats are not ✗
27. Tarsier cannot move its big eyes in their sockets like owl ✓
28. Wood is a transparent object that allows light to pass through it ✗
29. If I can see my face clearly on a surface, this means that it is a smooth, shiny surface ✓
30. honeybees use movement to communicate with each others ✓
31. The human eyes can see in the dark clearly. ✗
32. Tarsier Monkey and owl have poor night vision. ✗
33. The moon is a source of light ✗
34. The wooden board reflects light less than the mirror ✓
35. Human has a tapetum lucidum in his eye to help him see at night ✗
36. painted surface reflects light in one direction ✗
37. Some animals can see at night, such as a wild cat ✓
38. shadow formed when light hits transparent object ✗
39. Both humans and animals need a source of light to see ✓
40. The opaque materials do not let the light pass through ✓
41. Tapetum lucidum of fishing cat considered as a structural adaptation. ✓
42. Fishing cat has a mirror-like membrane on the back of the eye ✓
43. Whales sing with a high pitched sound during the mating season ✓
44. Humpback whales can sing under water ✓
45. In order to translate the code, the brain must identify it ✓
46. Animals can use more than one senses to communicate with each other ✓
47. Bees can know the sweet taste by their sense of smell ✗
48. Both Morse code and humpback whale can use sound energy in communication ✓
49. Bats use their sense of smell to avoid dangers ✗
50. Air resists the motion of a car. ✓
51. Drivers should drive as fast as possible to avoid accidents ✗
52. The stopping object can't move until a force acts on it ✓

53. Gravitational force is an upward pulling force ✗
54. When a pen falls down from your hand, the acting force is the gravity force ✓
55. When the static body is affected by balanced force, the body moves ✗
56. The seesaw moves up and down because the forces that act on it are unbalanced ✓
57. When the position of the body changes from a fixed point, the body moves ✓
58. The force that slows down or decreases the speed of an object is gravity. ✗
59. Gravity pulls objects towards the center of the Earth. ✓
60. Any moving object has a form of energy known as kinetic energy. ✓
61. When the roller coaster slides down fast, its kinetic energy increases ✓
62. The moving objects only have energy, while the objects that don't move have no energy ✗
63. When you kick a ball, kinetic energy is produced ✓
64. As the height of an object from the Earth's surface increases, its potential energy decreases ✗
65. In the electric fan, the kinetic energy is converted into electric energy. ✗
66. Energy is neither destroyed nor created from nothing. ✓
67. A static ball moves on the ground if it is affected by a force. ✓
68. The chemical energy in a battery can be converted into electrical energy. ✓
69. Energy is the ability to do work ✓
70. Seatbelt is one of safety equipment in cars. ✓
71. The high-speed moving objects face less dangers than the slower objects. ✗

QUESTION 04 Complete the following sentences

1. Panther chameleon puffs up its body with air for defense which is considered **behavioral** adaptation
2. Fish breath **oxygen** gas which dissolved in water .

3. The system that digests food to produce energy is **digestive system**
4. Chameleons can move each of their eyes in a different direction, this adaptation helps them to **catch prey – find food**
5. Leaves of plants that float above the surface of the water are so wide that they can **absorb sunlight**
6. Animals that have a thick layer of fat under the skin are animals that live in a **cold** environment
7. A tube with muscles that helps to push food into the stomach, is called **esophagus**
8. 📖 The dolphin has sharp sense of **hearing**
9. The eye sends messages to **brain** through the nerves.
10. The spinal cord is an important organ of the **nervous** system.
11. 📖 The form energy that can be seen is **light** energy.
12. Air and water are **transparent** materials and you can see things through them
13. Some animals have the ability to see in the dark because of **Tapetum lucidum**
14. Smooth surfaces reflect light in **one** direction.
15. I saw an eye shining in the dark, this animal could be **(cat (nocturnal animal))**
16. You can see the objects due to the **reflection** of light rays to the eyes
17. The eye pupil of the owl and cats is **wider** than the eye pupil of the human
18. **sun** , **candle** and **fire** are sources of light
19. 📖 Fireflies communicate with each other by producing a **light**
20. Morse code is way of communication depending first on **hearing** sense
21. The echo is turned in to vibrations in the **blind person cane** that is good by blind people .
22. The winter months are considered as the **matting** season for humpback whales.
23. A group of ants sends **smelly** message to communicate with each other.

24. Bats cannot see in the dark, but they hunt their prey at night because of **echolocation**
25. Both fireflies and honey bees use the sense of **sight** in their communication .
26. 📖 If the mass of an object decreases this mean that its kinetic energy **decrease**
27. The energy which is stored in a ball at the top of a hill is **gravitional potential energy** .
28. 📖 Airbags absorbs the **energy** of the car during collision..
29. 📖 When objects collide with each other, **energy** is transferred between them.

QUESTION 05 Write the scientific term

1	A type of adaptation that helps an animal to hide	camouflage
2	A liquid substance in the mouth that moistens food and begins to break it down	saliva
3	A change in the body structure of a living organism to survive	structural adaptation
4	A system that helps in breaking down food into smaller parts	Digestive system
5	A process of breaking down food into smaller parts that the body cells absorb and use to get energy and growth	digestion process
6	A change in the behaviors or acts of a living organism to survive	behavioral adaptation
7	A gas presents in air that living organisms breath during respiration process	oxygen gas
8	A group of organs that work together to perform a specific job	system
9	The first organ in digestive system	mouth
10	A feature in the bull shark, in which the upper surface of its body is darker than lower surface	Countershading
11	📖 The object which allows light to pass through it	transparent object
12	They are materials reflect the light rays in one direction	smooth and shiny material

13	A type of surface that reflects light in different direction.	rough surface
14	An animal can not move its eyes in their sockets	tarsier
15	it is a visible form of energy that travels in form of waves	light
16	A mirror like a membrane at the back of the fishing cat's eye .	tapetum lucidum
17	A tool used by the man works as the eyes of fishing cats at night.	night vision goggles
18	Sense organ that can detect light energy	Eye
19	The force that pulls objects toward the center of the earth .	gravity
20	It is a push or pull that is applied to an object cause it to change its position	force
21	it is the ability to do work	energy
22	it is a force that causes an object to move a distance	work
23	The energy that the object gains due to its motion	kinetic energy
24	The form of energy that increases when the speed of an object increases	kinetic energy
25	The stored energy in an object due to its position	potential energy
26	The process in which two objects or more crash into each other and includes an energy	collision
27	Safety equipment used to prevent car passengers from moving forward when the car stops suddenly	seatbelt
28	safety equipment provide a soft cushion, when it inflates automatically with a gas during collision	airbag
29	A heavy steel ball thot swings on a cable and it is used in destruction of buildings parts	A wrecking ball

QUESTION 06 Give reason..... ?

1. Owls can hunt during the night
Because owl is nocturnal animals with sharp hearing sense it use echolocation to find prey
2. You can see an object placed behind a glass cup
Because glass is transparent object allow light to pass through

3. The eyes of human do not glow like dog cats in the dark
Bec human don't have tapetum lucidum

4. fishing cat eyes glow in the dark
because it has tapetum lucidum that reflects the light falls on it

5. nocturnal animals can see in the dark
Because of tapetum lucidum

6. when light fall on object we can see it
Because of light reflection (light fall from light source on object then it reflect to our eyes)

7. moon is not considered as a source of light
Because it reflects the light of the sun that falls on it.

8. Humans use reading, writing and speaking
To communicate with each others

9. Some Animals use echolocation
To determine the location of living organisms and objects around them

QUESTION 07 What happened if .... ?

1. if a firefly wants to attract a mate to reproduce?
It use its wings to produce flash light (chemical reaction)

2. A danger becomes close to the colony of ants.
Solider ants send smelly messages

3. The sound waves produced by a bat hits an insect.
The sound waves return back to the bat inform of echo so bat can detect the place of insect

4. when the mass of a moving body increases, as it moves down wards along a ramp.
The kinetic energy will increase

QUESTION 08 cross the odd word

1	Penguin - Polar bear - Snake - Arctic fox	**snake**
2	Cat – Dog – Deer - Bat	**bat**
3	Wood - Glass cup – Book - Wall	**Glass cup**
4	Lamp-Fire-Moon-Candle	**Moon**
5	Bats – fireflies - blind person's cane - dolphins	**Fireflies**
6	Sound energy - light energy - thermal energy - chemical energy	**light energy**

QUESTION 09 Match

1

(A)		(B)		
1	Sun	a	reflect light rays in one direction	1- c
2	Shadow	b	is formed when the light strikes a human body.	2- b
3	Moon	c	is the main source of energy	3- d
4	Smooth	d	is shiny but is not considered a source of energy	4- a

2

(A)		(B)		
1	Gravity	a	the energy stored inside the body.	1- b
2	Friction	b	the force that pulls things downwards.	2-c
3	Speed	c	a force that arises between the surfaces of two contacted bodies.	3- d
4	Potential energy	d	the distance covered per time unit.	4- a

3

(A)		(B)		
1	Carbon dioxide	a	process that diaphragm expands and moves up	1- c
2	Exhalation	b	the process of pushing air in and out of the body	2- a
		c	is a gas that is produced by respiration process	

4

(A)		(B)		
1	Jerboa	a	it depends on the body's sense of heat for predation .	1- c
2	Snake	b	it depends on the echo of the sound in locating the prey .	2- a
3	Bat	c	it depends on its hind legs to jump .	3- b

5

(A)		(B)		
1	Tapetum lucidum	a	it is a common organ in the digestive and respiratory systems.	1- c
2	Pharynx	b	a muscle that has an important role in the respiration.	2- a
		c	a structural adaptation in the eye provides some animal a better vision at night	

6

(A)		(B)		
1	Light	a	an animal with a bowl-like face.	1- b
2	Owl	b	it is the visible form of energy that is transmitted in the form of waves.	2- a
		c	it depends on its hind legs to jump.	

7

(A)		(B)		
1	Camouflage	a	it helps us to see.	1- b
2	Smell	b	a type of adaptation that helps an animals to hide.	2- c
		c	ants use it to communicate.	

8

(A)		(B)		
1	Food	a	it can be transformed into potential energy	1- b
2	kinetic energy	b	it is a source of energy for humans	2- a
3	potential energy	c	it is the stored energy in an object	3- c

QUESTION 10 Answer the following questions

1. Give two examples for Objects that are considered as sources of light.

   Sun - candle

2. Give one example for an nocturnal animal that depend on its sense of heat to get their prey
   (snake)

3. Butterflies that have a color like the color of the tree they live on are called this phenomenon
   (Camouflage)

4. Rabbits have long and strong hind legs that help them to jump quickly and escape when danger determine the type of adaptation
   (Structural adaptation)

5. some dogs live in a cold environment, while some live in a hot environment. In your opinion, which one has thick fur, the cold environment or the hot environment? And why?
   (cold environment - to keep its body warm)

6. A dolphin can locate living organisms and things under the surface of the water and explain the feature that helps the dolphin to do .
   Because dolphin use echolocation as it has a strong sense of hearing

7. When you sit on the chair without moving. What is the name of the force that pulls you downward?
   Gravity pulling force

8. Mention some of the safety equipment in the car?

   1 – seatbelt 2- airbag

9. Find the speed of a runner, if you know that he covers 400 meters in 8 seconds.

   Speed = $\frac{\text{distance}}{\text{time}} = \frac{400}{8} = 50$ m / sec.

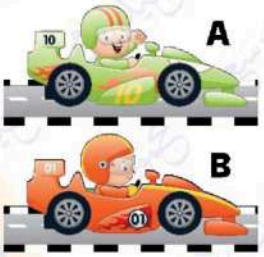
10. A train travels from Cairo to Alexandria in a distance of 200 kilometres in 2 hours, Find its speed

    Speed = $\frac{\text{distance}}{\text{time}} = \frac{200}{2} = 100$ km / hr.

11 Calculate the speed of a train that. covers 600 km in a time of 6 hours.

Speed $= \frac{\text{distance}}{\text{time}} = \frac{600}{6} = 100$ **km / hr**

12 **if the two Cars moved at the same time for 20 seconds, car (A) covered a distance of 100 meters, while car (B) covered a distance of 300 meters. Which of the two cars has a higher speed?**



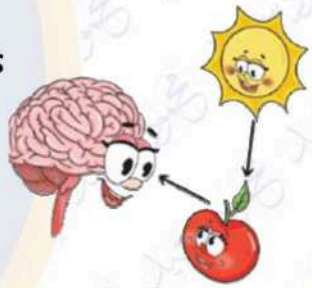
Speed of car (A) $= \frac{\text{distance}}{\text{time}} = \frac{100}{20} = 5$ **m/sec**

Speed of car (B) $= \frac{\text{distance}}{\text{time}} = \frac{300}{20} = 15$ **m/sec**

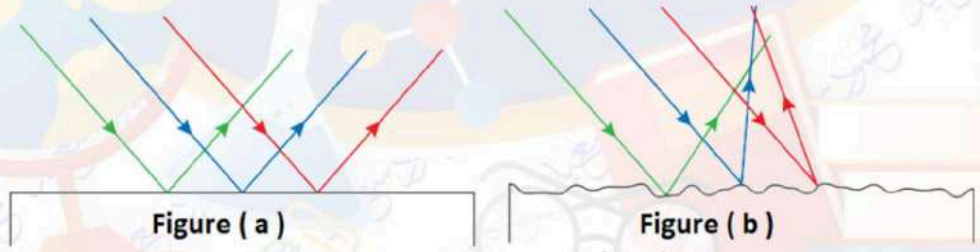
So car (B) has a higher speed

13 **Complete after noticing the following figure - What happens until you see this apple?**

- The light falls on the **apple** then it is reflected on the eyes – so the eyes transmit the message to **the brain** then he interprets it and translates it, so we see the apple.



14 **Look at the following figures, then answer the questions below:**



a. The surface in figure (a) is **smooth (mirror)** Because **the light rays reflected in one direction**

b. The surface in figure (b) is **rough (wood or cloth)** Because **the light rays reflected in different directions**

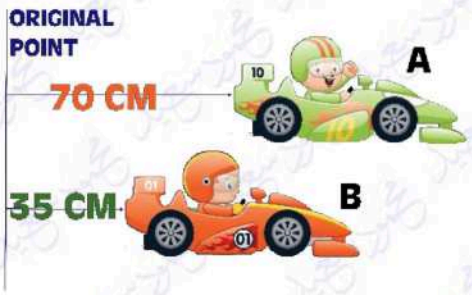
c. In the previous two figures, the falling and reflected rays show that light travels in **straight** lines.

d. The surface in figure (a) may be .....

(plastic - wood - **mirror** - cloth)

15 Which of these cars is affected by greater force ?
(give reason for your answer)

Car (A) ,because it travels a longer distance

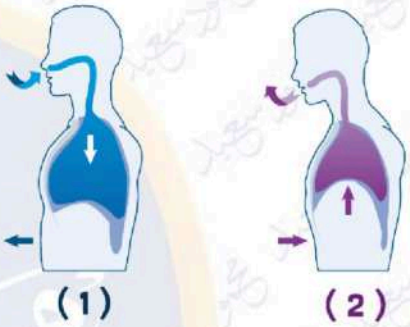


16 Note the following two figures.

a. Identify the name of each of the two processes in Figures 1, 2: -

1- inhalation process

2- exhalation process



b. What happens to the diaphragm in Figure (1).

Diaphragm move down

تم بحمد الله

بسم الله الرحمن الرحيم " إِنَّ الَّذِينَ آمَنُوا وَعَمِلُوا الصَّالِحَاتِ إِنَّا لَا نُضِيعُ أَجْرَ مَنْ أَحْسَنَ عَمَلًا " صدق الله العظيم

Science

Grade 4

First Term 2022 - 2023

Final Revision

Mr. Ahmed Elbasha

* طبقاً لأخر تعديل في المادة للعام الدراسي 2022-2023

Final Revision

Mr. Ahmed Elbasha

(1) Choose the right answer:

1. Moving faster or slower means that there is a change in the ..... of an object.

a. direction. b. speed. c. color. d. temperature.

2. The organism that has no eyes in the following species, is.....

a. tarsier monkey. b. golden frog.

c. barbary fig. d. bull shark.

3. All the following ways can be used to communicate between people except.....

a. reading. b. writing. c. speaking. d. flying.

4. A ball at the top of a hill stores.....energy.

a. sound. b. light. c. potential. d. chemical.

5. A firefly is not a bird, but it is a type of .....

a. amphibians. b. lizard. c. beetles. d. reptiles.

6. To increase the speed of moving object, you must give it more ..... energy.

a. light. b. potential. c. sound. d. kinetic.

7. Most cars around us use ..... as a fuel.

a. gasoline. b. sunlight. c. batteries. d. water.

8. Collision usually produce .....

a. solar energy. b. sound energy.

c. gravitational potential energy. d. chemical potential energy

9. When light hits an object, a shadow of this object is formed because .....

a. light can pass through the object. b. light cannot pass through the object.

c. this object reflects light. d. this object is a transparent object.

10. A very big truck needs ..... to move.

a. very small engine. b. small engine.

c. very big engine. d. no engine.

11. Bull shark can live in .....

a. fresh water only. b. salt water only.

c. seas, river, and mud. d. rivers, seas, and oceans.

12. In the tug-of-war game, two teams .....

a. pull the rope in the same direction. b. pull the rope in the opposite direction.

c. push the rope in the same direction. d. push the rope in the opposite direction.

13. When a Jerboa hears the sound of a moving snake, it .....

a. remains standing in its place. b. jumps to hunt the snake.

c. makes sounds to frighten the snake. d. jumps quickly to run away from the snake.

14. When your eyes see a red traffic light, it sends a signal to you to .....

a. increase your speed. b. decreases your speed.

c. keep your speed as it is. d. stop.

15. If the eye lens is made up of an opaque material, then this eye .....

a. can see the near object only. b. can see the far object only.

c. can see both the far and the near objects. d. cannot see any objects around it.

16. Humans and Cars are similar in .....

a. not able to produce sound energy. b. not able to produce kinetic energy.

c. similar in obtaining energy to move. d. similar in adaptation to live and survive.

17. Reading and Writing are common types of communication in ..... world.

a. Human. b. Animals. c. Plants. d. Birds.

18. Seatbelts work when the car .....

a. decrease its speed gradually. b. increase its speed gradually.

c. suddenly stops. d. stops gradually.

19. Sense organs collect information and send it to ..... for processing and understanding.

a. hands. b. legs.

c. brain. d. stomach.

20. All of the following are transparent objects, except .....

a. glass. b. water.

c. paper. d. air.

21. If we press the gas pedal while the car is moving on a road at a speed= 70 Km/hr. so, the speed of the car may reach ..... Km/hr.

a. 20. b. 40. c. 60. d. 80.

22..... is considered as a behavioral adaptation in the panther chameleon.

a. puffing up its body during danger.
b. each eye can move independently.
c. V-shaped feet.
d. long sticky tongue.

23. In penguin's feet, ... weave around each other.

a. warm blood vessels and cold blood vessels.
b. warm blood vessels and its toes.
c. cold blood vessels and its toes.
d. cold blood vessels and thick downy feathers.

24. All types of energy can be classified into two main groups which are .....

a. light energy and sound energy.
b. chemical energy.
c. potential energy and kinetic energy.
d. magnetic energy.

25. Push or pull actions are considered as types of .....

a. force. b. device. c. energy. d. adaptation.

26. When a car stops suddenly, the passenger moves .....

a. backward. b. forward. c. upward. d. downward.

27. The stored energy in a battery of flashlight changes into ....., when it is turned on.

a. chemical energy.
b. sound energy.
c. light energy.
d. potential energy.

28. The friction force between .....and the road causes a decrease in the speed of the car.

a. car tires. b. car horn. c. gas pedal. d. car door.

29. The presence of an insulating layer of ....., keep the penguin's body warm.

a. protein and thick downy feathers.
b. fat and thin downy feathers.
c. fat and thick downy feathers.
d. protein and thin downy feathers.

30. All of the following are forms of codes, except .....

a. thump up and thump down.
b. expression of faces.
c. writing.
d. swimming.

31. When the object collides with each other, ... is transferred between them.

a. time. b. distance.

c. energy. d. nothing.

32. In Morse code, long flashes can be used instead of .....

a. dots only. b. dashes only.

c. both dots and dashes. d. neither dots nor dashes.

33. If the angle of inclination of the road increases, the kinetic energy of an object moving downward on it, will .....

a. decrease. b. increase.

c. remain as it is. d. be destroyed.

34. Fennec foxes and arctic foxes live in burrows, this belongs to .....

a. only structural. b. only behavioral.

c. both structural and behavioral. d. neither structural nor behavioral.

35. A speed is a measurement of how ..... something is moving.

a. long. b. tall. c. fast. d. heavy.

36. A very big truck needs ..... to move.

a. very small engine. b. small engine.

c. very big engine. d. no engine.

37. Camouflage means that the animal .....

a. can be seen easily among its surrounding.

b. is hard to be seen among its surrounding.

c. is easily to be seen by its prey.

d. can be seen easily by its predators.

38. The five senses of humans include .....

a. sight, hearing, smell, touch, and movement.

b. sight, movement, taste, touch, and smell.

c. taste, touch, movement, hearing, and smell.

d. sight, hearing, smell, taste, and touch.

39. The starred agama keeps cool during a hot sunny day in desert by .....

a. eating green vegetables. b. drinking more water.

c. secreting more sweat. d. finding a shade area.

40. The system responsible for moving your hand away from danger, such as touching a hot cup of tea, is the ..... system.

a. digestive b. respiratory.

c. nervous. d. stomach.

41. When you move something toward you, this represents .....

a. pushing force. b. light energy.

c. pulling force. d. sound energy.

42. Cheetah has a ..... heart.

a. large weak. b. small weak.

c. large powerful. d. small powerful.

43. Bees can communicate with each other by .....

a. Morse code. b. dancing.

c. flash lights. d. echolocation.

44. All of the following are nocturnal animals, except .....

a. fishing cats b. cactus c. tarsier monkey d. bats

45. In gas oven ..... Energy changes into ..... energy.

a. chemical, sound b. heat, electric c. chemical, heat d. chemical, light

46. The undigested materials of the food pass from the small intestine into .....

a. liver b. esophagus c. stomach d. large intestine

47. The car's ..... helps in burning the fuel, and converting the potential energy into kinetic energy.

a. tires b. car lamps c. safety belt d. engine

48. The eyes of panther chameleon are belong to ..... adaptation

a. structural b. behavioral

c. behavioral and structural d. no correct answer

49. Mirror has a ..... surface

a. shiny b. smooth c. rough d. A & B

50. The ..... medium that allows light to pass through it.

a. Opaque b. Dark c. Transparent d. All the pervious answers

51. ..... processes, interprets and understands information.

a. Brain b. Spinal cord

c. Nerves d. Body parts

52. All the following are examples of codes except .....

a. face expressions b. hand waves

c. traffic light d. watching TV

53. The root of palm tree helps it to .....

a. Resist the winds b. Reach to the underground water

c. Fix the plant in soil d. All the previous answers

54. The smooth, flat and shiny surface of mirror ..... light waves energy.

a. absorbs b. refracts

c. reflects d. transmits

55. The system responsible for moving your hand away from danger, such as touching a hot cup of tea, is the ..... system.

a. digestive b. respiratory c. nervous d. stomach

56. From the structural adaptation of water lily plant is that .....

a. it has long roots. b. it has sharp spines.

c. it has tiny leaves. d. it has wide leaves.

57. When a car suddenly stops, the passengers move .....

a. backward. b. forward. c. upward. d. downward.

58. The speed of an object is measured in ..... or meters per second.

a. kilograms per hour b. grams per second

c. kilometers per hour d. kilograms per kilometers

59. Animals can communicate with each other through .....

a. sounds and lights. b. talking. c. reading. d. writing.

60. Which of the following allows the light to pass through it ? .....

a. A rock. b. Moon. c. Wood. d. Glass.

61. Bats are ..... animals.

a. nocturnal b. morning c. not hearing d. not flying

62. If a car covered a distance of 10 meters in a time of 2 seconds, so the speed of the car is .....

a. 50 m/sec. b. 20 m/sec. c. 20 m/sec. d. 5 m/sec.

63. ..... energy affects the sensory receptors in the eye causing vision .

a . sound b. Kinetic c. Light d. Magnetic

64. The force that slows down (decreases) the speed is called .....

a. push. b. gravity. c. friction. d. pull.

65. The organ responsible for the sight sense is .....

a. the ear. b. the tongue. c. the nose. d. the eye.

66. Ability to do work is .....

a. energy. b. force. c. push. d. pull.

67. An animal has the ability to turn its head in all directions is the .....

a. snake. b. jerboa c. dolphin. d. owl.

68. Which of the following is a source of light ? .....

a. Eye. b. Moon. c. Fire. d. Mirror.

69. Tapetum lucidum exists in all of the following, except .....

a. the horse. b. the cat. c. the human. d. the dog.

70. Each of the following is considered a source of light, except .....

a. the fire. b. the Sun. c. the lamp. d. the eye.

71. ..... is one of the behavioral adaptations that help the animal protect itself from enemies.

a. Camouflage b. Extinction c. Immigration d. Reproduction

72. To calculate the speed of a body, we need to know .....

a. distance only b. time only c. energy and time d. distance and time

73. All the following are components of the nervous system except .....

a. spinal cord b. heart c. nerves d. brain

74. The communication between ants occurs by .....

a. movement b. light c. smell d. sound

75. Speed is measured in .....

a. second/meter b. hour/kilometer c. meter/second d. meter/kilometer

76. Bees communicate using .....

a. light b. sound c. movements d. internet

77. The energy stored in a compressed spring is a ..... energy.

a. chemical b. kinetic c. potential d. electrical

78. The fatty layer in penguins is considered a/an ..... material which keeps the penguin's body warm.

a. transparent b. opaque c. insulating d. cold

79. Digestion of food begins in the mouth and ends in .....

a. the anus b. the stomach

c. the small intestine d. the large intestine

80. What happens, when a car stops suddenly? .....

a. The passenger moves backwards. b. The passenger moves forwards.

c. The passenger remains stable. d. (a) and (b).

81. Which of the following stores energy? .....

a. Food. b. Battery.

c. Gasoline. d. All the previous answers.

82. A boat moves a distance of 30 meters in a time of 10 seconds, so its speed is ..... m/s.

a. 3 b. 10 c. 30 d. 300

83. Fish extracts oxygen out of water through .....

a. skin b. gills c. lungs d. fins

84. The ..... system helps us to translate messages that come from our surroundings, such as smells and sounds.

a. respiratory b. digestive c. nervous d. circulatory

85. Raising the thumb up or lowering it down is a kind of .....

a. colors b. codes c. waves d. lights

86. The force that pulls the objects down toward the center of the Earth is ..... force.

a. gravity b. pushing c. pulling d. wind

87. One of the light-reflecting materials is .....

a. wood b. mirrors c. plastic d. paper

✹(2) Complete the following sentences using the words between brackets:

1. **From the opaque objects .....**

(carton - glass)

2. **The gas oven converts ..... energy stored in the natural gas into heat energy to cook the food.**

(chemical - electrical)

3. **The speed of moving object = ...**

(distance x time - distance / time)

4. **Fish have .....to breath.**

(gills - lungs)

5. **One of the light reflecting materials is .....**

(wood - mirror)

6. **.....is a source of light.**

(the Sun - the eye)

7. **Bats use .....as a means of communication with each other.**

(sound - light)

8. **The ability to do a work is called .....**

(energy - gravity)

9. **The time that the body takes to react to different information from the environment is called .....**

(reflex action - reaction time)

10. **If Noor travels a distance of 10 km in two hours, then she is moving at a speed of .....** (10 km/hr. - 5 km/hr.)

11. **What carries the message from your eyes to your brain when you see something ? ...**

(Nerves - Muscle)

12. **What kind of energy is stored inside the battery ? .....**

(Chemical energy- Heat energy)

13. **The force that pulls things down is to the ground .....**

(friction - gravity)

14. **The echo sound feature depends on .....**

(hearing sense - sight sense)

15. ..... destroys the lungs and causes many diseases.

(Breathing - Pollution)

16. An animal that can escape from enemies because of the Length of its hind Leg .....

(Arctic fox - Jerboa)

17. ..... mix and grind food inside the mouth.

(Teeth only - Teeth and tongue)

18. Fish breathe ..... gas which is dissolved in water.

(oxygen - carbon dioxide)

19. An example of objects that allow light to pass through is .....

(lens - paper)

20. The fatty layer under the animal's skin which warms it is considered a ..... adaptation.

(structural - behavioral)

21. The relation between speed and kinetic energy is.....

(direct - inverse)

22. When light is absorbed by an opaque object, ... is formed.

(tapetum lucidum - shadow)

23. We see most objects because they.....

(emit light - reflect light)

24. The blood transports ..... gas from the lungs to all the cells of the body.

(oxygen - carbon dioxide)

25. Electric wire carries ..... energy.

(kinetic - electrical)

26. The force that causes the falling down of fruits from the tree is the .....

(pushing force - gravity)

27. The speed of a body increases, when the time taken to cover a certain distance .....

(increases - decreases)

28. When ..... forces act on a static body, it will move.

(balanced - unbalanced)

✹(3) Complete the following :

1. ..... represents the main control center and is responsible for processing information.
2. echolocation property is used by..... and ..... animals to locate their preys.
3. among safety equipment which are used during collision of cars ..... and .....
4. if the kinetic energy of a moving body decreases, its speed will .....
5. ants use their sense of ..... to communicate with each other, while bees use ..... by doing a special dances to communicate with each other.
6. writing a code that uses the sense of ..... to communicate.
7. if a bird flies up from the ground to a high tree, so its potential energy will .....
8. all living organisms, breathe in oxygen gas, and gives out ..... as a waste product.
9. humans use lungs to breath, while fish use .....
10. some nocturnal animals have a mirror-like membrane on the back of their eyes called .....
11. Writing is a code that uses sense of ..... to read.
12. The ..... energy depends on the speed of a moving object.
13. In the electric bell, ... energy changes into ..... energy.
14. Echolocation is a type of communication that depends on the sense of ..... and it used by some animals such as ..... and .....
15. To increase the ..... energy of any moving object we must increase its speed.
16. dolphins have sharp sense of ..... which they use to locate living organisms under water through the ..... property.
17. to measure the speed of a moving bicycle we need to divide the ..... it travels by the ..... it takes to travel this trip.
18. The system which is responsible for moving your hand away when you touch a cup of hot water is the ..... system.
19. Bats and special cane of blind people are similar in using ..... property to locate objects.

20. The speed of a moving object on a smooth ramp is ..... Than that of the same object that moves on a rough ramp.

21. a human can feel the hotness of a cup of coffee by using the sense of .....

22. Echolocation property is used by ..... and ..... animals to locate their preys.

23. As the speed of cars increases, the damage that occurs during collisions .....

24. The speed of two objects are equal, if they cover the same ..... at the same amount of .....

25. Any object will move, if it has ..... energy.

26. The speed moving ball on the ground decreases gradually until it stops due to the effect of ..... force.

27. Light travels in ..... line.

28. When objects collide with each other, ... is transferred between them.

29. In gas oven, ... energy changes into ..... energy.

30. A human can pay attention to an alarm bell in case of danger through the sense of .....

31. When the jerboa is in danger, it starts to run away, this action occurs in a very short time called .....

32. ..... is the central control system in the body

33. ..... objects allow light rays to pass through them.

34. ..... is the main source of light.

✹(4) Put (√) or (X) :

1. Wood is an opaque material ( )
2. when balanced force is applied on a body at rest, it moves. ( )
3. The sandy-color fur of fennec fox is an example of behavioral adaptation. ( )
4. When ecosystem is rapid changed, many organisms may die. ( )
5. The moon is not considered as a light source ( )
6. the sense of hearing of dolphins is stronger than that of human. ( )
7. sensory receptors in finger can distinguish between smooth and rough objects. ( )
8. fireflies communicate with each other through songs. ( )
9. Cat's eyes look like small lighted lamps at night. ( )
10. you need energy to make a force to move a chair from one place to another. ( )
11. the bus that covers 60 kilometers in 1 hour has a speed = 60 m/sec. ( )
12. digestion process begins in stomach with the help of salvia. ( )
13. Exposing to air rich in dust harms the respiratory system. ( )
14. The motion of an object is affected by a friction force. ( )
15. Animals communicate with each other by using different senses. ( )
16. Seatbelt is one of the safety equipment in cars. ( )
17. As human needs clean water to drink, fish needs clean air to breathe. ( )
18. humans can restore ecosystem as well as they can harm them. ( )
19. the angle of the incline affects the speed of an object moving on it. ( )
20. Radio is operated by sound energy, and produces electric energy. ( )
21. the small size of cheetah's heart help it in running so fast. ( )
22. Kinetic energy cannot be transformed into potential energy. ( )
23. the bus that covers 60 kilometers in 1 hour has a speed= 60 km/hr. ( )
24. pollution is one of the most dangerous problems, that affects all living organisms. ( )
25. The sense of smell is super in all animals. ( )
26. Morse Code is a communication system that is used by firefly. ( )
27. Force is necessary to move or stop an object. ( )

28. Bull shark can live in salt water only. ( )

29. The food passes through the large intestine before it goes into the small intestine. ( )

30. The sense of hearing of dolphins is stronger than that of human. ( )

31. if you want an object to move slower, you must give it more kinetic energy. ( )

32. The animals that cannot adapt to environmental change, the will extinct ( )

33. The fireflies communicate by lighting ( )

34. Energy is the ability to do work. ( )

35. Moon is a source of light. ( )

36. Camouflage is a type of adaptation that helps animals hide from predators ( )

37. Mirror is an example of smooth surface. ( )

38. Air enters lungs during the inhalation process. ( )

39. Inhaled air contains a large amount of carbon dioxide ( )

40. There is 1 type of adaptation ( )

41. The sense organs responsible for receiving smell of perfume is the nose ( )

42. Sun is the main source of light. ( )

43. The nocturnal animals have super sense help them to hunt at night. ( )

44. Wood is an opaque material ( )

45. The respiratory system is responsible for the entry of air into the body. ( )

46. Dolphins have a strong sight sense. ( )

47. When the roller coaster slides down fast, its kinetic energy increases ( )

48. Some animals can see at night. ( )

49. Wood is a transparent object that allows light to pass through it. ( )

50. Light travels in straight lines. ( )

51. The chemical energy in a battery can be converted into electrical energy. ( )

52. Red and green traffic lights are considered codes. ( )

53. The ear is the sense organ which is responsible for seeing objects. ( )

54. In order for the code to be translated, the brain must identify it. ( )

55. The brain is responsible for processing information. ( )

56. Energy is neither destroyed nor created from nothing. ( )

57. The nervous system is responsible for breathing. ( )

58. The Moon is a source of light. ( )

59. Food turns from complex to simple during the digestion process. ( )

60. While running and making an effort, the number of breathing times decreases. ( )

61. Nocturnal animals have eyes that are larger than human's eyes. ( )

62. Humans have a tapetum lucidum in their eyes to see at night. ( )

63. Gravity force is an upward pulling force . ( )

64. When the position of the body changes according to a fixed point, the body moves. ( )

65. Plants have two types of adaptation (structural and behavioral). ( )

66. Some animals can see at night. ( )

67. The Moon is a source of Light. ( )

68. The nervous system works separately from the senses. ( )

69. Human has a tapetum lucidum in his eye to help him see at night. ( )

70. The energy stored in a battery is called chemical potential energy. ( )

71. Exhaled air is loaded with oxygen. ( )

72. Unbalanced forces don't change the position of objects. ( )

73. Force is necessary to move or stop objects. ( )

74. Exposing to air rich in dust for a long time harms the human respiratory system. ( )

75. A moving object is not affected by friction force. ( )

76. Seatbelt is one of the safety equipment in cars. ( )

77. Animals communicate with each other by using different senses. ( )

✹(5) Correct the underline

1	Air enters the two lungs during **exhalation** process.	(.....)
2	Bats use echolocation as they have super **sight** sense.	(.....)
3	The eyes use **sound** energy to see.	(.....)
4	**Speed** doesn't destroy, but it can only change from one form to another.	(.....)
5	The **spinal cord** is responsible for processing information coming through eyes.	(.....)
6	**Acacia tree** floats on the surface of water.	(.....)
7	morse code uses dashes and **questions marks**, that there represent different letters of alphabet.	(.....)
8	when you hear the fire alarm, your **eyes** send a signal to the brain.	(.....)
9	During inhalation diaphragm moves **upwards**.	(.....)
10	A cell phone is a device that is used in communication between **animals**.	(.....)
11	**Sound** energy is used in cooking food.	(.....)
12	the ability to do **force** or cause a change is known as energy.	(.....)
13	as the object moves faster, its **potential** energy increases.	(.....)
14	**Gravity** force slows down the moving car when the tires touch the ground.	(.....)
15	**Agama lizard** has thick feathers and fat layer.	(.....)
16	The **balanced** forces cause the object to move.	(.....)

17	When you turn on a radio, the electrical energy changes into **light** energy	(.....)
18	**Potential** energy depends on the speed of an object.	(.....)
19	Moving an object towards you represents a **pushing** force	(.....)
20	**Seatbelts** absorb the energy of the car due to its collision and gets inflated	(.....)

تقدر تحضر البث المباشر علي يوتيوب لحل الملزمة في المواعيد الاتية بالترتيب:

بث مباشر المراجعات النهائية للصف الرابع الابتدائي ساينس على قناة مستر احمد الباشا على يوتيوب :

1. **البث الأول** (السبت 2022/12/24) الساعة 5:30 م
2. **البث الثاني** (الثلاثاء 2022/12/27) الساعة 5:30 م
3. **البث الثالث** (السبت 2022/12/31) الساعة 5:30 م
4. **البث الرابع** (الثلاثاء 2023/1/3) الساعة 5:30 م

بث مباشر اضافي :

1. **الاثنين 2023/1/9 الساعة 5 م**
2. **الثلاثاء 2023/1/10 الساعة 5 م**

ساعة البث المباشر ادخل على يوتيوب واكتب في البحث (مستر احمد الباشا) وادخل على القناة والبث دائما في اول نتيجة تظهر لك ولا تنسي والاشتراك في القناة

✹(6) Matching:

1

A	B
1.Sound energy	**a.** it changes into another energy that can be stored inside the human body.
2.Light energy	**b.** when it reaches our ears, it causes hearing.
3.Thermal energy	**c.** when it reaches our eyes, it causes vision.
4. Stored chemical energy in food.	**d.** it is produced from electric heater.

1- **2-** **3-** **4-**

2

A	B
1. friction force	**a.** are the forces that act on any object to make it moves.
2. balanced forces	**b.** is the force that act in the opposite direction of the object's movement to stop it.
3. unbalanced forces	**c.** is the force that act in the same direction of the object's movement to stop it.
	d. are the force that act on any object that doesn't move.

1- **2-** **3-**

3

A	B
1. bats	**a.** makes a special dance to communicate with each other.
2. bees	**b.** using echolocation during flying
3. blind person's cane	**c.** its vibrations tell the blind person to the directions.

1- **2-** **3-**

4

A	B
1. Fireflies	**a.** depends on the sense of smell in their communication.
2. Whales	**b.** depends on the sense of hearing in their communication
3. Ants	**c.** depends on the sense of sight in their communication

1- **2-** **3-**

5

A	B
1. Camouflage	**a.** it helps us to see.
2. Smell	**b.** a type of adaptation that helps an animals to hide.
3. Pharynx	**c.** ants use it to communicate.
	d. it is a common organ in the digestive and respiratory systems .

1- **2-** **3-**

6

A	B
1. Motion	**a.** a muscle that has an important role in the respiration process.
2. Diaphragm	**b.** the ability to do work.
3. Energy	**c.** the change in the position of an object with respect a fixed point.

1- **2-** **3-**

7

A	B
1. Carbon dioxide	**a.** a gas necessary for respiration.
2. Oxygen	**b.** a structural adaptation whose function is similar to the lungs.
3. Gills	**c.** it helps us to see.
	d. is a gas that is produced during respiration process.

1- **2-** **3-**

8

A	B
1. Motion	**a.** The ability to do work.
2. Energy	**b.** The change in the position of an object with respect to a fixed point.
3. Gas oven	**c.** It is a pattern that has a meaning.
4. Code	**d.** It converts chemical energy into heat energy.

1- **2-** **3-** **4-**

✹(7) TRY TO ANSWER:

1

Look at the following figures, then answer the questions :

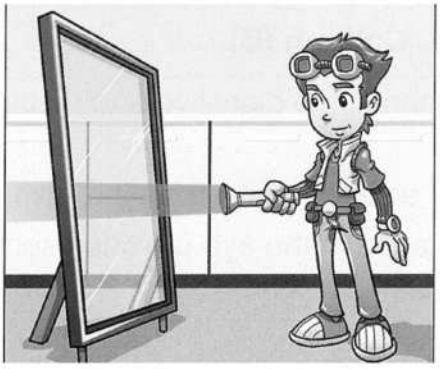


Figure (a)

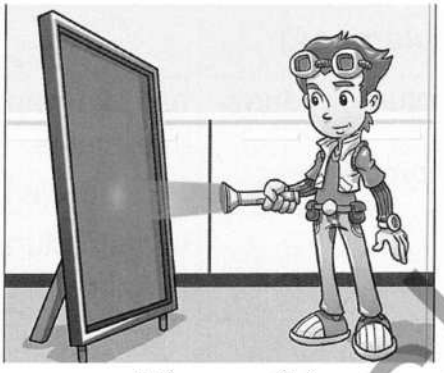


Figure (b)

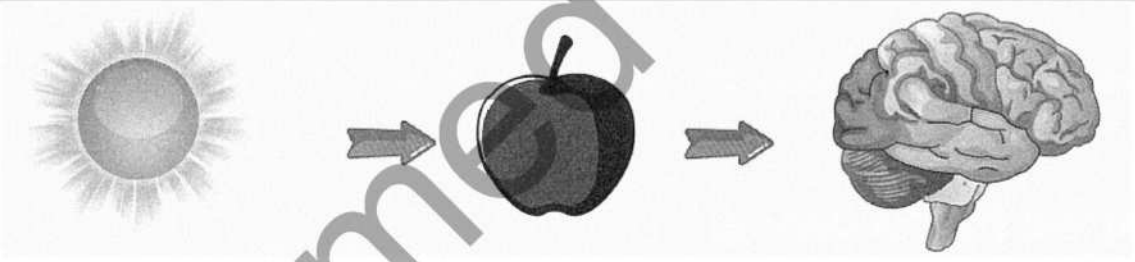
1. Which figure represents a transparent object?

.....

2. Which figure represents an opaque object?

.....

2



Complete after noticing the following figure.

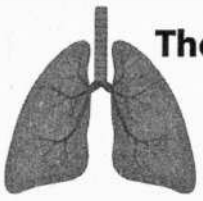
The light falls on the ....., then it is reflected on the ....., so they transmit the message to ....., then it interprets it and translates it, finally we see the apple.

3

Write the name of the system which each organ belongs to:

Stomach

Brain



The two lungs

....

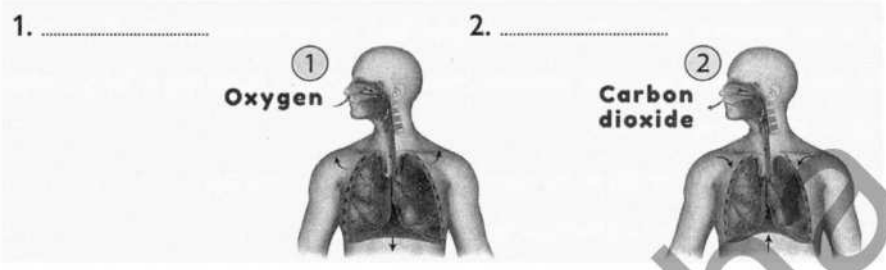
....

....

4

Answer the following:

- Note the following two figures. Identify the name of each of the two processes in figures 1,2.

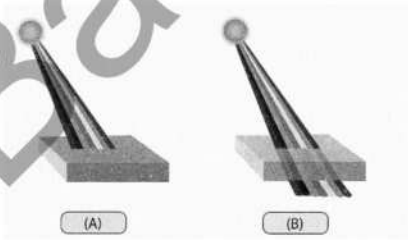


5

Answer the following:

- Look at the path of the light rays in pictures (A) and (B).

Determine which of the two objects is opaque and which is transparent.



(Object) (A) is .....

(Object) (B) is .....

✹(8) Problem

1

Find the speed of a runner, if you know that he covers 300 meters in 30 seconds.

.....

.....

.....

2

A truck travels a distance of 160 kilometers in 2 hours. Find its speed.

.....

.....

.....

3

Amir rides his bike and covers a distance of 150 meters in 5 seconds.

Calculate the speed of the bike.

.....

.....

.....

4

A car moves forward a distance 100 kilometers in time equals 2 hours.

Calculate the speed of the car.

.....

.....

.....

5

If two cars moved at the same time for 20 .seconds, car (A) covered a distance of 100 meters, while car (B) covered a distance of 300 meters.

Which one of the two cars has a higher speed?

.....

.....

.....

Model Answer

✹(1) Choose the right answer:

1. B	9. B	17. A	25. A	33. B	41. C	49. D	57. B	65. D	73. B	81. D
2. C	10. C	18. C	26. B	34. B	42. C	50. C	58. C	66. A	74. C	82. A
3. D	11. D	19. C	27. C	35. C	43. B	51. A	59. A	67. D	75. C	83. B
4. C	12. B	20. C	28. A	36. C	44. B	52. D	60. D	68. C	76. C	84. C
5. C	13. D	21. D	29. C	37. B	45. C	53. D	61. A	69. C	77. C	85. B
6. D	14. D	22. A	30. D	38. D	46. D	54. C	62. D	70. D	78. C	86. A
7. A	15. D	23. A	31. C	39. D	47. D	55. C	63. C	71. A	79. A	87. B
8. B	16. C	24. C	32. B	40. C	48. A	56. D	64. C	72. D	80. B	

✹(2) Complete the following sentences using the words between brackets :

1. Carton	6. The sun	11. Nerves	16. Jerboa	21. Direct	26. Gravity
2. Chemical	7. Sound	12. Chemical energy	17. Teeth and tongue	22. Shadow	27. Decreases
3. Distance/time	8. Energy	13. Gravity	18. Oxygen	23. Reflect light	28. Unbalanced
4. Gills	9. Reaction time	14. Hearing sense	19. Lens	24. Oxygen	
5. Mirror	10. 5 km/h	15. Pollution	20. Structural	25. Electrical	

✹(3) Complete the following :

1. Brain	6. Sight	12. Kinetic	17. Distance – time	24. Distance – time	31. Reaction time
2. Bat – dolphin	7. Increase	13. Electric – sound	18. Nervous	25. Kinetic	32. Brain
3. Airbags – seatbelts	8. Carbon dioxide	14. Hearing – bats and dolphins	19. Echolocation	26. friction	33. Transparent
4. Decrease	9. Gills	15. Kinetic	20. Faster	27. Straight	34. Sun
5. Smell – movement	10. Tapetum lucidum	16. Hearing – echolocation	21. Touching	28. Energy	
	11. sight		22. Bats – dolphin	29. Chemical – heat	
			23. Increase	30. Hearing	

✹(4) Put (√) or (X) :

1. (√)	9. (√)	17. (√)	25. (X)	33. (√)	41. (√)	49. (X)	57. (X)	65. (√)	73. (√)
2. (X)	10. (√)	18. (√)	26. (X)	34. (√)	42. (√)	50. (√)	58. (X)	66. (√)	74. (√)
3. (X)	11. (X)	19. (√)	27. (√)	35. (X)	43. (√)	51. (√)	59. (√)	67. (X)	75. (X)
4. (√)	12. (X)	20. (X)	28. (X)	36. (√)	44. (√)	52. (√)	60. (X)	68. (X)	76. (√)
5. (√)	13. (√)	21. (X)	29. (X)	37. (√)	45. (√)	53. (X)	61. (√)	69. (X)	77. (√)
6. (√)	14. (√)	22. (X)	30. (√)	38. (√)	46. (X)	54. (√)	62. (X)	70. (√)	
7. (√)	15. (√)	23. (√)	31. (X)	39. (X)	47. (√)	55. (√)	63. (X)	71. (X)	
8. (X)	16. (√)	24. (√)	32. (√)	40. (X)	48. (√)	56. (√)	64. (√)	72. (X)	

✹(5) Correct the underline

1. Inhalation	5. Brain	9. Downward	13. Kinetic	17. Sound
2. Hearing	6. Water lily	10. Humans	14. Friction	18. Kinetic
3. Light	7. Dots	11. Heat	15. Penguin	19. Pulling
4. Energy	8. Ears	12. Work	16. Unbalanced	20. Airbag

✹(6) Matching:

1

1- b 2- c 3- d 4- a

2

1- b 2- d 3- a

3

1- b 2- a 3- c

4

1- c 2- b 3- a

5

1- b 2- c 3- d

6

1- c 2- a 3- b

7

1- d 2- a 3- b

8

1- b 2- a 3- d 4- c

✹(7) TRY TO ANSWER:

1

1- Figure (a) 2- Figure (b)

2

1- apple – eyes – brain

3

1- digestive system – nervous system – respiratory system

4

1- Inhalation 2- Exhalation

5

- Opaque
- Transparent

✹(8) Problem

1

$$\text{Speed of runner} = \frac{\text{distance}}{\text{time}} = \frac{300}{30} = 10\ \text{m/s}$$

2

$$\text{Speed of truck} = \frac{\text{distance}}{\text{time}} = \frac{160}{2} = 80\ \text{km/h}$$

3

$$\text{Speed of bike} = \frac{\text{distance}}{\text{time}} = \frac{150}{5} = 3\ \text{m/s}$$

4

$$\text{Speed of car} = \frac{\text{distance}}{\text{time}} = \frac{100}{2} = 50\ \text{km/h}$$

5

$$\text{Speed of car (A)} = \frac{\text{distance}}{\text{time}} = \frac{100}{20} = 5\ \text{km/h}$$

$$\text{Speed of car (B)} = \frac{\text{distance}}{\text{time}} = \frac{300}{20} = 15\ \text{km/h}$$

So car (B) is faster than car (A)

Final Revision

Mr. Ahmed Elbasha

(1) Choose the right answer:

1. Bat use their ..... to get information about surrounding in the dark.

a. nose. b. tongue. c. eyes. d. ears.

2. Press the pedal of a car sends more ..... into engine.

a. air. b. water. c. milk. d. fuel.

3. Opaque material .....

a. allows light to pass through.

b. absorbs some of light that fall on it only.

c. bounces off some of light that fall on it only.

d. absorbs some of light that fall on it and bounces of the other.

4. Moving faster or slower means that there is a change in the ..... of an object.

a. direction. b. speed.

c. color. d. temperature.

5. All the following are examples of acting forces except, ...

a. kicking a ball. b. pressing a button.

c. listening to music. d. lifting a bag.

6. In penguin's body, the insulating layer of fat and thick downy feathers trap ..... against the skin.

a. cold air. b. cold water.

c. warm water. d. warm air.

7. The organism that has no eyes in the following species, is.....

a. tarsier monkey. b. golden frog.

c. barbary fig. d. bull shark.

8. All the following ways can be used to communicate between people except.....

a. reading. b. writing.

c. speaking. d. flying.

9. A ball at the top of a hill stores.....energy.

a. sound. b. light. c. potential. d. chemical.

10. Parachutes are used in the shockwave truck to .....

a. increase its speed. b. keep its speed as it is.

c. decrease its speed. d. changing its direction.

11. A firefly is not a bird, but it is a type of .....

a. amphibians. b. lizard. c. beetles. d. reptiles.

12. To increase the speed of moving object, you must give it more ..... energy.

a. light. b. potential. c. sound. d. kinetic.

13. If a desert lizard is transferred into a cool environment, it will stop .....

a. looking for a shade area. b. looking for a water to drink.

c. breathing. d. eating.

14. Most cars around us use ..... as a fuel.

a. gasoline. b. sunlight. c. batteries. d. water.

15. Collision usually produce .....

a. solar energy. b. sound energy.

c. gravitational potential energy. d. chemical potential energy

16. When light hits an object, a shadow of this object is formed because .....

a. light can pass through the object. b. light cannot pass through the object.

c. this object reflects light. d. this object is a transparent object.

17. In the tug-of-war game, when two teams are pulling a rope, and the rope doesn't move toward any team, this mean that .....

a. equal forces are being applied on the rope in the same direction.

b. equal forces are being applied on the rope in the opposite direction.

c. unequal forces are being applied on the rope in the same direction.

d. unequal forces are being applied on the rope in the opposite direction.

18. There is a ..... inside your eye, that redirects the entered light rays.

a. black paper. b. white paper.

c. lens. d. mirror.

19. A very big truck needs ..... to move.

a. very small engine. b. small engine.

c. very big engine. d. no engine.

20. Bull shark can live in .....

a. fresh water only. b. salt water only.

c. seas, river, and mud. d. rivers, seas, and oceans.

21. In the tug-of-war game, two teams .....

a. pull the rope in the same direction.
b. pull the rope in the opposite direction.
c. push the rope in the same direction.
d. push the rope in the opposite direction.

22. If you catch a piece of ice in your hand, you will begin to lose feeling in your finger after a few .....

a. minutes.
b. hours.
c. days.
d. weeks.

23. When a Jerboa hears the sound of a moving snake, it .....

a. remains standing in its place.
b. jumps to hunt the snake.
c. makes sounds to frighten the snake.
d. jumps quickly to run away from the snake.

24. If there is nothing to stop the movement of an object, this object will .....

a. stay in motion.
b. stop after few hours.
c. stop after few minutes.
d. stop after few second.

25. The speed of normal truck is more than that of .....

a. a jet airplane only.
b. a jet airplane and a rocket.
c. a rocket and bicycle.
d. a bicycle only.

26. When your eyes see a red traffic light, it sends a signal to you to .....

a. increase your speed.
b. decreases your speed.
c. keep your speed as it is.
d. stop.

27. All of the following examples represent kinetic energy, except .....

a. light waves moving through the air.
b. sound waves moving through the air.
c. stores chemical energy in a car battery.
d. water particles movement during heating.

28. The part of the car that release the stored potential energy in gasoline, is the .....

a. radio.
b. engine.
c. tire.
d. window.

29. When light rays hit an object, all the following sentences are correct, except .....

a. some of those rays are absorbed by the object.
b. some of those rays are bounced off the object.
c. some of those rays may go through the object.
d. some of those rays reflect to our ears causing hearing.

30. If the eye lens is made up of an opaque material, then this eye .....

a. can see the near object only.
b. can see the far object only.
c. can see both the far and the near objects.
d. cannot see any objects around it.

31. What force do you use to kick a ball with your leg? .....

a. pull. b. push.

c. sound. d. light.

32. Humans and Cars are similar in .....

a. not able to produce sound energy.

b. not able to produce kinetic energy.

c. similar in obtaining energy to move.

d. similar in adaptation to live and survive.

33. Reading and Writing are common types of communication in ..... **world.**

a. Human. b. Animals.

c. Plants. d. Birds.

34. Seatbelts work when the car .....

a. decrease its speed gradually. b. increase its speed gradually.

c. suddenly stops.

d. stops gradually.

35. Sense organs collect information and send it to ..... **for processing and understanding.**

a. hands. b. legs.

c. brain. d. stomach.

36. By increasing the number of fire extinguishers fixed to a cart, ...

a. its speed increases. b. its speed decreases.

c. its speed doesn't change. d. its speed become zero.

37. All of the following are transparent objects, except .....

a. glass. b. water.

c. paper. d. air.

38. If we press the gas pedal while the car is moving on a road at a speed= 70 Km/hr. so, the speed of the car may reach ..... **Km/hr.**

a. 20. b. 40. c. 60. d. 80.

39. During crossing a street, you had to stop for a moment to avoid the danger of being hit, the system that alerted you was the ..... **system.**

a. respiratory. b. digestive. c. urinary. d. nervous.

40. ..... **is considered as a behavioral adaptation in the panther chameleon.**

a. puffing up its body during danger. b. each eye can move independently.

c. V-shaped feet. d. long sticky tongue.

41. In penguin's feet, ... weave around each other.

a. warm blood vessels and cold blood vessels.

b. warm blood vessels and its toes.

c. cold blood vessels and its toes.

d. cold blood vessels and thick downy feathers.

42. All types of energy can be classified into two main groups which are .....

a. light energy and sound energy. b. chemical energy.

c. potential energy and kinetic energy. d. magnetic energy.

43. Push or pull actions are considered as types of .....

a. force. b. device.

c. energy. d. adaptation.

44. When a snake makes a noise, the sensory receptors found in jerboa's ..... send a warming message to the brain.

a. ears. b. nose.

c. feet. d. teeth.

45. A ball move away from the foot of the football player by the affected of .....

a. pushing force only. b. pulling force only.

c. pushing and pulling forces. d. sound energy.

46. When a car stops suddenly, the passenger moves .....

a. backward. b. forward. c. upward. d. downward.

47. The stored energy in a battery of flashlight changes into ....., when it is turned on.

a. chemical energy. b. sound energy.

c. light energy. d. potential energy.

48. Humans cannot live without .....to obtain the needed energy for their activities.

a. reading a book. b. driving a car.

c. watching television. d. eating food.

49. The friction force between .....and the road causes a decrease in the speed of the car.

a. car tires. b. car horn. c. gas pedal. d. car door.

50. The presence of an insulating layer of ....., keep the penguin's body warm.

a. protein and thick downy feathers. b. fat and thin downy feathers.

c. fat and thick downy feathers. d. protein and thin downy feathers.

51. When a panther chameleon stands within leaves of trees, the color of its scale changes into ..... Color.

a. white. b. green.

c. blue. d. black.

52. All of the following are forms of codes, except .....

a. thump up and thump down. b. expression of faces.

c. writing. d. swimming.

53. When the object collides with each other, ... is transferred between them.

a. time. b. distance.

c. energy. d. nothing.

54. In Morse code, long flashes can be used instead of .....

a. dots only. b. dashes only.

c. both dots and dashes. d. neither dots nor dashes.

55. Umbrella-shaped tree are .....

a. mangrove tree and acacia tree. b. mangrove tree and kapok tree.

c. acacia tree and kapok tree. d. barbary fig and water lilies.

56. If the angle of inclination of the road increases, the kinetic energy of an object moving downward on it, will .....

a. decrease. b. increase.

c. remain as it is. d. be destroyed.

57. Fennec foxes and arctic foxes live in burrows, this belongs to .....

a. only structural. b. only behavioral.

c. both structural and behavioral. d. neither structural nor behavioral.

58. To describe the color of your school bag to your friend, you should use the sense of .....

a. sight. b. smell. c. taste. d. touch.

59. By increasing the number of fire extinguishers fixed to a cart, ...

a. its speed increases. b. its speed decreases.

c. its speed doesn't change. d. its speed becomes zero.

60. A speed is a measurement of how ..... something is moving.

a. long. b. tall. c. fast. d. heavy.

61. A very big truck needs ..... to move.

a. very small engine. b. small engine.

c. very big engine. d. no engine.

62. Camouflage means that the animal .....

a. can be seen easily among its surrounding.

b. is hard to be seen among its surrounding.

c. is easily to be seen by its prey.

d. can be seen easily by its predators.

63. Cheetah's nose has large openings, which help it .....

a. breathe a lot of air.

b. breathe a little amount of air.

c. hide from its predator.

d. hide from its prey.

64. The five senses of humans include .....

a. sight, hearing, smell, touch, and movement.

b. sight, movement, taste, touch, and smell.

c. taste, touch, movement, hearing, and smell.

d. sight, hearing, smell, taste, and touch.

65. The structural adaptation that helps the fishing cat to catch a prey at night, is that its ability .....

a. to feel the heat of prey's body.

b. to hide inside the forest.

c. to digest its prey easily.

d. of excellent night vision.

66. The starred agama keeps cool during a hot sunny day in desert by .....

a. eating green vegetables.

b. drinking more water.

c. secreting more sweat.

d. finding a shade area.

67. A snake has the ability to catch preys at night because .....

a. it can smell them.

b. it can hear their heartbeats.

c. it can see them clearly at night.

d. it can sense the heat of their warm bodies.

68. Electric energy operate the following devices, except .....

a. radio.

b. candle.

c. cellphone.

d. television.

69. The system responsible for moving your hand away from danger, such as touching a hot cup of tea, is the ..... system.

a. digestive

b. respiratory.

c. nervous.

d. stomach.

70. When you move something toward you, this represents .....

a. pushing force.

b. light energy.

c. pulling force.

d. sound energy.

71. Cheetah has a ..... heart.

a. large weak. b. small weak.

c. large powerful. d. small powerful.

72. Ancient ..... created hieroglyphs in central America that included 800 different signs.

a. Egyptians. b. Chinese.

c. Mayans. d. Greeks.

73. The scout honeybee makes ..... round dance if the flower is very close.

a. 1 b. 2

c. 3 d. 4

74. Fennec foxes and arctic foxes lives in burrow this belongs to .....

a. only structural. b. only behavioral.

c. both structural and behavioral. d. neither structure nor behavioral.

75. The presence of thick fur is physical adaptation in .....

a. fennec fox. b. agama lizard.

c. forest bear. d. polar bear.

76. To describe the bag color of your friend, you should use the sense of .....

a. taste. b. sight.

c. touch. d. smell.

77. Writing and reading are common types of communication in ..... world.

a. reptiles. b. humans.

c. plants. d. birds.

78. Bees can communicate with each other by .....

a. Morse code. b. dancing.

c. flash lights. d. echolocation.

79. An electric fan produces ..... energy.

a. chemical. b. electrical.

c. mechanical. d. thermal.

80. An object stays moving with its same speed, when .....

a. its kinetic energy decreases. b. its potential energy increases.

c. no another force stops it. d. another object collides with it.

81. All the following are organs in the digestive system except .....

a. mouth. b. nose. c. stomach. d. esophagus.

82. When the cheetah increases its speed, its kinetic energy .....

a. decreases. b. become zero.

c. increases. d. doesn't change.

83. The acacia tree warning the other nearby acacia trees from animals by sending .....

a. a watery message in the air. b. a watery message in the water.

c. a smelly message in the air. d. a smelly message in the water.

84. If you are in your room, you can tell what kind of food is being prepared in the kitchen by using your sense of .....

a. taste b. hearing c. touch d. smell

85. All of the following are nocturnal animals, except .....

a. fishing cats b. cactus c. tarsier monkey d. bats

86. Writing and reading are common types of communication in ..... world.

a. reptiles b. plants c. humans d. birds

87. Which of the following communications uses the sense of hearing only?

a. Flashing lights of fireflies b. Traffic lights

c. fire d. Echolocation in bats

88. Bees can communicate other by .....

a. morse code b. dancing c. flash lights d. echolocation

89. While operating the electric oven to cook food, it uses ..... energy.

a. electric b. sound c. chemical d. heat

90. In gas oven ..... Energy changes into ..... energy.

a. chemical, sound b. heat, electric c. chemical, heat d. chemical, light

91. Bull sharks can live in .....

a. fresh water only b. salt water only

c. seas, rivers and mud d. rivers, seas, and oceans

92. The acacia tree warning the other nearby acacia trees from animals by sending .....

a. pizza's odor b. perfume's scent c. smelly message in the air d. sings in air

93. The undigested materials of the food pass from the small intestine into .....

a. liver b. esophagus c. stomach d. large intestine

94. Cutting down forests and eroding soil are from the environmental changes that happen due to .....

a. Human activities b. natural changes

c. environmental changes d. no correct answer

95. The car's ..... helps in burning the fuel, and converting the potential energy into kinetic energy.

a. tires b. car lamps c. safety belt d. engine

96. The ..... extends from the brain down through backbone.

a. nerves b. spinal cord c. stomach d. eye

97. If you are in your room, you can tell what kind of food is being prepared in the kitchen by using your sense of .....

a. taste b. hearing

c. touch d. smell

98. In gas oven ..... energy changes into ..... energy.

a. chemical, sound b. heat, electric

c. chemical, heat d. chemical, light

99. The eyes of panther chameleon are belong to ..... adaptation

a. structural b. behavioral

c. behavioral and structural d. no correct answer

100. Communication and sending information can be carried out through .....

a. drums b. signs c. light flashes d. all the pervious answers

101. When light falls on rough surface, it is .....

a. absorbed b. diffused c. reflected d. refracted

102. The bees use ..... by doing some movements to tell other bees the direction and distance to the food resources.

a. light b. codes c. speaking d. movements

103. The Egyptians invented papyrus which is a type of paper made from the ..... plants.

a. Bamboo b. mulberry c. cactus d. reed

104. Which of the following doesn't form a shadow when light falls on it?

a. wood b. Tree c. cardboard c. clear glass

105. Mirror has a ..... surface

a. shiny b. smooth c. rough d. A & B

106. ..... is a type of language created by Ancient Egyptians in the year 3000 BCE.

a. Hieroglyphic b. Babylonian

c. Mayan d. Chinese

107. The ..... medium that allows light to pass through it.

a. Opaque b. Dark c. Transparent d. All the pervious answers

108. ..... processes, interprets and understands information.

a. Brain
b. Spinal cord
c. Nerves
d. Body parts

109. The digestive system of human is similar to digestive system of cow .....

a. they start with mouth and end with anus
b. They have one stomach
c. they eat the same food
d. They have the same of teeth

110. An animal that can escape from enemies because of the length of its hind leg.

a. Arctic fox
b. jerboa
c. Foxes
d. Snakes

111. The ability of fireflies to emit flashes of light is a kind of .....

a. Camouflage
b. Behavioral adaptation
c. structural adaptation
d. Hereditary

112. Waggle dance of honeybee indicates the direction of .....

a. enemy
b. mating
c. food and water sources
d. all the previous answers

113. All the following are examples of codes except .....

a. face expressions
b. hand waves
c. traffic light
d. watching TV

114. Ant groups communicate through a ..... sense and this considered a ..... type of adaptation.

a. Smell, behavioral
b. Taste, behavioral
c. Taste , Structural
d. Smell, Structural

115. Which animal has sensitive and shine eyes in the dark?

a. Cat
b. Amphibian
c. Monkey
d. Snake

116. The living organism that has no eyes in the following species, is .....

a. Tarsier monkey
b. Owl
c. Fishing cat
d. Acacia tree

117. Sound and light are two types of energy where, ...

a. The sound energy can be seen, while light energy can't be seen.
b. the light energy can't be seen and sound energy can't be seen.
c. Both can be seen.
d. Sound energy can't be seen, while light can be seen.

118. Sensory organs like nose, ears and skin receive external information and convert it into .....

a. Nutrients
b. Nerves signals
c. Energy
d. Light

119. The root of palm tree helps it to .....

a. Resist the winds
b. Reach to the underground water
c. Fix the plant in soil
d. All the previous answers

120. Most predator birds like hawks possess tools such as ..... to tear the meat of their prey which is a ..... adaptation.

a. sharp teeth, structural
b. sharp beaks, behavioral
c. sharp beaks, structural
d. broad beaks, behavioral

121. When Light falls on a rough surface, it is .....

a. Reflected
b. Diffused (Scattered.
c. Absorbed
d. Transmitted

122. Which of the following traits that help cactus and barbary fig adapt in extreme habitats?

a. They fleshy stem to store water.
b. They have waxy layer to reduce water lose.
c. they have spines to prevent animals to eat them.
d. They have long roots to look for underground water.

123. The smooth, flat and shiny surface of mirror ..... light waves energy.

a. absorbs
b. refracts
c. reflects
d. transmits

124. Rami stopped his bike because he heard a car speeding towards. Which system received the external signal of hearing that enabled rami to respond by stopping his bike?

a. Muscular system
b. Skeletal system
c. Digestive system
d. Nervous system

✹(2) Complete the following :

1. ..... is a big nerve runs inside the backbone of the human body.
2. ..... represents the main control center and is responsible for processing information.
3. The reaction time of visual respond is ..... than auditory respond.
4. when you push a table on the floor, the..... transfer from your body to the table.
5. echolocation property is used by..... and ..... animals to locate their preys.
6. humans, amphibians and reptiles have ..... to breath oxygen gas in the air.
7. among safety equipment which are used during collision of cars ..... and .....
8. among animals that can live in polar environment are ..... and .....
9. if the kinetic energy of a moving body decreases, its speed will .....
10. ants use their sense of ..... to communicate with each other, while bees use ..... by doing a special dances to communicate with each other.
11. the speed of a moving object on a smooth ramp is ..... than that of the same object that moves on a rough ramp.
12. you can arrive your house using a bicycle in a time ..... than the time taken when you use a car.
13. during inhalation, air travels down from your throat to your lungs through .....
14. if the driver takes his foot off the gas pedal, the speed of the car will ..... gradually until it stops due to the ..... between the car tires and the road.
15. writing a code that uses the sense of ..... to communicate.
16. when a skater begins to skate, his stored ..... energy changes into ..... energy.
17. if a bird flies up from the ground to a high tree, so its potential energy will .....
18. all living organisms, breathe in oxygen gas, and gives out ..... as a waste product.
19. chemical energy is found in many things such as ..... inside a car's engine, in ..... for our bodies and in ..... of a flashlight.

20. as the pollution rate of water in ponds and air increases, the number of amphibians .....

21. the ..... is the organ that sends information to the brain when you smell the scent of a nice perfume.

22. when a moving car hits a tree, a part of ..... energy of the car changes into a ..... energy which you hear it.

23. humans use lungs to breath, while fish use .....

24. some nocturnal animals have a mirror-like membrane on the back of their eyes called .....

25. Writing is a code that uses sense of ..... to read.

26. The ..... energy depends on the speed of a moving object.

27. In the electric bell, ... energy changes into ..... energy.

28. The lens in your eye ..... the light in a point, while the tapetum lucidum membrane in cat's eyes ..... the light.

29. On hearing an alarm ring, the sensory receptors that are found in the ..... send a message through a network of nerves to the ..... which determines what to do to avoid danger.

30. Among the objects which give out their own light are ..... and ..... while ..... and ..... are objects that bounce off light.

31. Echolocation is a type of communication that depends on the sense of ..... and it used by some animals such as ..... and .....

32. The bee dances in a figure-eight pattern while vibrating its ..... and the other bees read the…… of the dancer and then fly off to the specific location.

33. when two cars move on the same road, car(A) moves at speed equals 10m/sec., and car(B) moves at speed equals 20 m/sec., this means that car ..... moves longer distance than car ..... in the same time.

34. Most of ..... energy in the Newton's cradle is transferred from the first ball to the rest of balls.

35. To increase the ..... energy of any moving object we must increase its speed.

36. When a skater begins to skate, his stored ..... energy changes into ..... energy.

37. if you move a bag placed on a table to the floor, its potential energy will .....
38. dolphins have sharp sense of ..... which they use to locate living organisms under water through the ..... property.
39. to measure the speed of a moving bicycle we need to divide the ..... it travels by the ..... it takes to travel this trip.
40. when you throw a ball in the air, it starts to fall down again towards the ground due to the effect of pulling force of .....
41. hopping of the Egyptian Jerboa in zigzag patterns to stay away from the snakes attacking it, is considered as a ..... adaptation.
42. animals can blend in with their environment to hide from their ..... and preys through ..... property.
43. A moving object continues in ..... until something ..... it.
44. In the solar vehicle, the light energy of the sun is converted into ..... energy that allows the car to move.
45. when the lens in your eyes can't focus the light properly this causes ..... vision.
46. The eyes of ..... seem to glow in the dark, while the eyes of ..... can see in two opposite directions at the same time.
47. Forest bears have ..... or ..... colored fur, while polar bears have ..... colored fur.
48. If an object is placed at a height of the Earth's surface, it will store .....
49. In tug-of-war game, the rope moves toward the group which has pulling force ..... than the other group.
50. The system which is responsible for moving your hand away when you touch a cup of hot water is the ..... system.
51. Bats and special cane of blind people are similar in using ..... property to locate objects.
52. The speed of a moving object on a smooth ramp is ..... Than that of the same object that moves on a rough ramp.
53. a human can feel the hotness of a cup of coffee by using the sense of .....
54. we can say that the moving objects is fast when it covers along ..... In a short period of .....

55. when an apple falls from a tree its ..... energy will decrease. while, when a rocket goes up its potential energy will .....
56. The thick fur coat helps ..... fox hunts in deep snow, while the blood movement in the feet of ..... keep their toes from freezing.
57. Echolocation property is used by ..... and ..... animals to locate their preys.
58. the fishing cat can hunt at night depending on the sense of ..... , while snake can hunt at night depending on its ability to sense ..... which comes out from its prey's body.
59. As the speed of cars increases, the damage that occurs during collisions .....
60. The speed of two objects are equal, if they cover the same ..... at the same amount of .....
61. The sound waves that picked up by the cane of a blind person is turned into ..... that the person can feel them with his .....
62. If you push a small ball and a big ball with the same force, a small ball moves a distance ..... than the big ball.
63. Any object will move, if it has ..... energy.
64. The penguin's body can keep warm air against its skin through an insulating layer of ..... and thick downy .....
65. The owl uses the senses of ..... and ..... in hunting preys at night.
66. The speed moving ball on the ground decreases gradually until it stops due to the effect of ..... force.
67. Light travels in ..... line.
68. When objects collide with each other, ... is transferred between them.
69. A penguin can stand around on ice all day due to the weaving of…… around each other in its feet.
70. In gas even, ... energy changes into ..... energy.
71. The response of the eye nerves is ..... than that of the ear nerves.
72. You can arrive your house using a bicycle in a time ..... than the time taken when you use a car.

73. A human can pay attention to an alarm bell in case of danger through the sense of .....

74. The ..... is the organ that sends information to the brain when you smell the scent of a nice perfume.

75. if a truck moves with a high speed, so it has more ..... energy.

76. When the jerboa is in danger, it starts to run away, this action occurs in a very short time called .....

77. ..... objects reflect most of light rays like mirror and aluminium foil.

78. ..... is the central control system in the body

79. Animal that eats grass like ..... has flat teeth.

80. ..... objects allow light rays to pass through them.

81. ..... is the main source of light.

✹(3) Put (√) or (X) :

1.	Ear collects sound waves then nerves send signals to brain to translates it.	( )
2.	Wood is an opaque material	( )
3.	morse code consists of long and short beeps	( )
4.	when balanced force is applied on a body at rest, it moves.	( )
5.	The responsible organ getting oxygen from the air is brain.	( )
6.	The sandy-color fur of fennec fox is an example of behavioral adaptation.	( )
7.	Acacia leaves are protected from eaten by animals as they have spines.	( )
8.	Stomach connects esophagus with large intestine.	( )
9.	Both human and fish need food and oxygen to get energy.	( )
10.	When ecosystem is rapid changed, many organisms may die.	( )
11.	The moon is not considered as a light source	( )
12.	the sense of hearing of dolphins is stronger than that of human.	( )
13.	you need energy to push a car forward or backward.	( )
14.	the rotation of Earth around the Sun is easy to be seen.	( )
15.	eyes are one of the five senses, on which humans depend to see the surroundings.	( )
16.	speaking is the only way of communication between people.	( )
17.	sensory receptors in finger can distinguish between smooth and rough objects.	( )
18.	hitting a tennis ball needs a pulling force.	( )
19.	the spinal cord delivers messages between the brain and the feet.	( )
20.	fireflies communicate with each other through songs.	( )
21.	Expression on faces are codes that can help people predict our feelings.	( )
22.	Cat's eyes look like small lighted lamps at night.	( )
23.	kapok tree has hand-shaped leaves.	( )
24.	humpback whales produce only one type of songs.	( )
25.	the sense of hearing of dolphins is stronger than that of human.	( )
26.	you need energy to make a force to move a chair from one place to another.	( )

27. when the air is released backward from the fire extinguishers fixed to a cart, the cart moves backward. ( )

28. light waves is a form of potential energy. ( )

29. penguins have vessels in their feet that help them survive in polar regions. ( )

30. the bus that covers 60 kilometers in 1 hour has a speed = 60 m/sec. ( )

31. you can see a green ball inside a transparent glass box. ( )

32. Fireflies make light flashes by using their legs. ( )

33. digestion process begins in stomach with the help of salvia. ( )

34. a dog uses its sense of smell and eyesight to identify its owner. ( )

35. Exposing to air rich in dust harms the respiratory system. ( )

36. If two objects travel for equal amount of time, the object that travels a greater distance have a slower speed. ( )

37. Both human and fish need food and oxygen to get energy. ( )

38. The motion of an object is affected by a friction force. ( )

39. Some animals prefer hunting during the night than hunting during the day. ( )

40. The object that travels down a ramp is affected by the force of gravity. ( )

41. Eyes are one of the five senses, on which humans and animals depend on to see the surroundings. ( )

42. All electric devices are operated by using light energy. ( )

43. Animals communicate with each other by using different senses. ( )

44. Seatbelt is one of the safety equipment in cars. ( )

45. As human needs clean water to drink, fish needs clean air to breathe. ( )

46. mouth, nose, esophagus and stomach are from the organ of the digestive system. ( )

47. if a person moves a table through a distance so, there is a work done. ( )

48. humans can restore ecosystem as well as they can harm them. ( )

49. a rocket can travel faster than a car. ( )

50. adaptation to store water, is an important character for plants that live in dry desert environment. ( )

51. the angle of the incline affects the speed of an object moving on it. ( )

52. we use our sense of smell to identify the color of a flower. ( )

53. most nocturnal animals have huge eyes to gather and reflect any light available. ( )

54. lifting a book upward needs more energy than pushing a truck. ( )

55. The human body gets oxygen gas from food. ( )

56. Panther chameleon and agama lizard can use one of their eyes for searching for food, and other eye to lookout for danger. ( )

57. Radio is operated by sound energy, and produces electric energy. ( )

58. Although snake has a weak night vision, but it can hunt at night. ( )

59. The Egyptian jerboa can jump for long distance depending on its long hind legs. ( )

60. the small size of cheetah's heart help it in running so fast. ( )

61. Respiratory problems like lung damage and asthma, occur when water pollution is high over a long period of time. ( )

62. A skin helps human distinguishes between the taste of different types of food through the sense of touch. ( )

63. By changing the height of the ramp, the speed of a ball moves on its changes. ( )

64. Kinetic energy cannot be transformed into potential energy. ( )

65. Unbalanced forces keep an object in its place without moving. ( )

66. Speaking is the only way of communication between people. ( )

67. hitting a tennis ball needs a pulling force. ( )

68. Morse code may use long , short flashes of light instead of long and short beeps. ( )

69. a jerboa has large ears which help in sensing the snake. ( )

70. the bus that covers 60kilometers in 1hour has a speed= 60 km/hr. ( )

71. kinetic energy, muscle of skater and his nervous system are working together to help him jump high into the air. ( )

72. pollution is one of the most dangerous problems, that affects all living organisms. ( )

73. we cannot create a new form of energy, and also we cannot destroy an existed form of energy. ( )

74. The sense of smell is super in all animals. ( )

75. Morse Code is a communication system that is used by firefly. ( )

76. Dogs eat meat that is very difficult to be digested compared with grass. ( )

77. If two objects cover the same distance in same time so, they have the same speed. ( )

78. Living organisms can adapt their environmental conditions through structural adaptation and behavioral adaptation. ( )

79. The electric lamp gives out two types of energies which are light energy and thermal energy. ( )

80. The body senses and systems work separately when animals run away from their enemies.

81. All animals are similar in shape and structure of digestive system. ( )

82. Force is necessary to move or stop an object. ( )

83. Bull shark can live in salt water only. ( )

84. transformation of potential energy into kinetic energy during ice-skating, proves that the energy can be created but can't be destroyed. ( )

85. The food passes through the large intestine before it goes into the small intestine. ( )

86. The sense of hearing of dolphins is stronger than that of human. ( )

87. The large ear of a jerboa is an example of structural adaptation. ( )

88. when two heavy and fast cars are in an opposite direction, collide together they produce very small amount of damage. ( )

89. You can change kinetic energy into stored potential energy when you compress a toy spring. ( )

90. if you want an object to move slower, you must give it more kinetic energy. ( )

91. Animals that live in hot areas are characterized by thick fur ( )

92. Natural changes can lead animals and plants to lose their habitats ( )

93. The animals that cannot adapt to environmental change, the will extinct ( )

94. Pollution is one of the most dangerous problems, that affect all living organisms. ( )

95. The fireflies communicate by lighting ( )

96. The person who checkup and test either the eye lens is focusing well or not, is the optometrist. ( )

97. Humpback whales change their songs along the seasons. ( )

98. Energy is the ability to do work. ( )

99. Moon is a source of light. ( )

100. penguin feet freeze when it walks on ice ( )

101. Camouflage is a type of adaptation that helps animals hide from predators ( )

102. Mirror is an example of smooth surface. ( )

103. Dogs have a long digestive system. ( )

104. Cows have sharp teeth ( )

105. Cows have many stomachs as they eat grass which is hardly digested ( )

106. The digestion process is an important process that provide us with energy from nutrients.

107. Air enters lungs during the inhalation process. ( )

108. Alveoli exist in the trachea ( )

109. Inhaled air contains a large amount of carbon dioxide ( )

110. There is 1 type of adaptation ( )

111. Wide leaves of water lily is a behavioral adaptation ( )

112. Bull shark's countershading phenomenon is a structural adaptation ( )

113. Cutting down trees eroding soils are from the environment changes happening die to human activities. ( )

114. Animals that live in polar habitats have thick fur and fatty layers under skin. ( )

115. The time of auditory stimulus is faster than the visual stimulus. ( )

116. The sensory organs responsible for receiving the sound of noise is the mouth. ( )

117. The sense organs responsible for receiving smell of perfume is the nose ( )

118. Animals that live in hot areas are characterized by thick fur. ( )

119. Humpback whales change their songs along the seasons. ( )

120. Energy is the ability to do work. ( )

121. Sun is the main source of light. ( )

122. Morse code consists of long and short bees. ( )

123. The nocturnal animals have super sense help them to hunt at night. ( )

124. The digestive system is completely similar in all animals even if the type of food is different ( )

125. The parts of the nervous system work together to identify the environment and interpret information. ( )

126. Wood is an opaque material ( )

127. when balanced force is applied on a body at rest, it moves. ( )

✹(4) Correct the underline

1	Air enters the two lungs during **exhalation** process.	(.....)
2	**Light** is a code uses symbol and letters to transfer information.	(.....)
3	A cell phone is a part of **engineering** system.	(.....)
4	Bats use echolocation as they have super **sight** sense.	(.....)
5	**Kapok** trees produce a poison to prevent animals from eating their leaves.	(.....)
6	The auditory respond is **faster** than the visual respond.	(.....)
7	**Light** is a pattern has meaning.	(.....)
8	**Cow** has short and simple digestive system.	(.....)
9	The eyes use **sound** energy to see.	(.....)
10	**Speed** doesn't destroy, but it can only change from one form to another.	(.....)
11	Air enters the two lungs during **exhalation** process.	(.....)
12	Bees communicate to find **carbon dioxide** and water sources.	(.....)
13	The papyrus is made from **bamboo and mulberry plants** that grows in the Nile River.	(.....)
14	The **spinal cord** is responsible for processing information coming through eyes.	(.....)
15	under the effect of **pushing** force of gravity, anything falls down to the ground.	(.....)
16	**Acacia tree** floats on the surface of water.	(.....)

17	Fireflies produce a **physical** reaction inside their bodies that allows them to light up .	(.....)
18	Fish breathe through **moist skin**, while frog breathe through **gills** and skin.	(.....)
19	A ball's **potential** energy increases as it slides down on inclined surface.	(.....)
20	morse code uses dashes and **questions marks**, that there represent different letters of alphabet.	(.....)
21	The **spinal cord** is responsible for processing information coming through eyes.	(.....)
22	**Speed** doesn't destroy, but it can only change from one form to another.	(.....)
23	**Chemical** energy is the only form of energy can be seen.	(.....)
24	Robot use **light** energy to work.	(.....)
25	Scientists classifies energy into **four** categories.	(.....)
26	By increasing the number of fire extinguisher, the speed will **decrease**.	(.....)
27	To slow down speed of a moving object, we have to **increase** the applied force acting on it.	(.....)
28	when you hear the fire alarm, your **eyes** send a signal to the brain.	(.....)
29	the dancing bee moves in figure- **seven** pattern while vibrating its wings.	(.....)
30	During inhalation diaphragm moves **upwards**.	(.....)
31	Humpback whales have **similar** sounds according to the season.	(.....)
32	Different language have **similar** codes.	(.....)
33	A cell phone is a device that is used in communication between **animals**.	(.....)

34	**Sound** energy is used in cooking food.	(.....)
35	your **potential** energy is transferred from your foot to a ball when you kick it.	(.....)
36	the ability to do **force** or cause a change is known as energy.	(.....)
37	we cannot see all forms of energy, except **sound** energy.	(.....)
38	as the object moves faster, its **potential** energy increases.	(.....)
39	if you push a pencil upward, it stops at a certain height then falls down due to the effect of **pushing** force of gravity.	(.....)
40	**Gravity** force slows down the moving car when the tires touch the ground.	(.....)
41	when you jump up, the force of **friction** pulls you back to the ground.	(.....)
42	moving objects stop when a force of the same amount is applied on it in the **same** direction.	(.....)
43	Balanced force is a force when two **unequal** forces acting on the object.	(.....)
44	**Agama lizard** has thick feathers and fat layer.	(.....)
45	if the car runs out of fuel, its speed **increases**.	(.....)
46	Chameleon depends on its **eyes** to hold branches of trees.	(.....)
47	Agama lizards live in **polar**	(.....)

✸(5) Match :

1

A	B
1.Sound energy	a. it changes into another energy that can be stored inside the human body.
2.Light energy	b. when it reaches our ears, it causes hearing.
3.Thermal energy	c.it changes into electrical energy in flashlight.
4. Stored chemical energy in food.	d. when it reaches the nose, it causes smelling.
5. Stored chemical energy in a battery	e. when it reaches our eyes, it causes vision.
	f. it is produced from electric heater.

1- 2- 3- 4- 5-

2

A	B
1.friction force	a. are the forces that act on any object to make it moves.
2. balanced forces	b. is the force that act in the opposite direction of the object's movement to stop it.
3. unbalanced forces	c. is the force that act in the same direction of the object's movement to stop it.
	d. are the force that act on any object that doesn't move.

1- 2- 3-

3

A	B
1.snake	a. has strong wings, that help it to fly.
2.fishing cat	b. can feel the warm of prey body at night.
3.human	c. has night vision better than snake and lower than fishing cat.
	d. has a mirror-like membrane on the back of its eye.

1- 2- 3-

4

A	B
1. bats	a. make a special dance to communicate with each other.
2. bees	b. using echolocation during flying
3. blind person's cane	c. its vibrations tell the blind person to the directions.

1- 2- 3-

5

A	B
1. Fireflies	a. depends on the sense of smell in their communication.
2. Whales	b. depends on the sense of hearing in their communication
3. Ants	c. depends on the sense of sight in their communication

1- **2-** **3-**

6

A	B
1. Water	a. it is an opaque material, that reflects light in different directions.
2. Glass	b. it is a transparent material is used in making doors.
3. Wood	c. it is a transparent material that used in cooking and watering plants

1- **2-** **3-**

7

A	B
1. They created a hieroglyphic writing	a. energy
2. its eyes shine at dark	b. Egyptians
3. the amount of energy needed to move an object.	c. cat
4. The ability to do work.	d. work

1- **2-** **3-** **4-**

8

A	B
1.Normal engine	a. is used in stopping both of the shockwave truck and rockets.
2. Jet engine	b. is used in moving a normal truck.
3. Parachute	c. is used to stop a normal truck.
	d. is used in moving the shockwave truck

1- **2-** **3-**

Model Answer

✹(1) Choose the right answer:

1. D
2. D
3. D
4. B
5. C
6. D
7. C
8. D
9. C
10. C
11. C
12. D
13. A
14. A
15. B
16. B
17. B
18. C
19. C
20. D
21. B
22. A
23. D
24. A
25. D
26. D
27. C
28. B
29. D
30. D
31. B
32. C
33. A
34. C
35. C
36. A
37. C
38. D
39. D
40. A
41. A
42. C
43. A
44. A
45. A
46. B
47. C
48. D
49. A
50. C
51. B
52. D
53. C
54. B
55. C
56. B
57. B
58. A
59. A
60. C
61. C
62. B
63. A
64. D
65. D
66. D
67. D
68. B
69. C
70. C
71. C
72. C
73. A
74. B
75. D
76. B
77. B
78. B
79. C
80. C
81. B
82. C
83. C
84. D
85. B
86. C
87. D
88. B
89. A
90. C
91. D
92. C
93. D
94. A
95. D
96. B
97. D
98. C
99. A
100. D
101. B
102. B
103. D
104. C
105. D
106. A
107. C
108. A
109. A
110. B
111. B
112. C
113. D
114. A
115. A
116. D
117. D
118. B
119. D
120. C
121. B
122. C
123. C
124. D

✹(2) Complete the following :

1. Spinal cord
2. Brain
3. Faster
4. Energy
5. Bat – dolphin
6. Lungs
7. Airbags – seatbelts
8. Penguin – polar pear
9. Decrease
10. Smell – movement
11. Higher
12. Longer
13. Trachea
14. Decrease – friction force
15. Sight
16. Potential – kinetic
17. Increase
18. Carbon dioxide
19. Fuel – food – battery
20. Decrease
21. Nose
22. Kinetic – sound
23. Gills
24. Tapetum lucidum
25. sight
26. Kinetic
27. Electric – sound
28. Collect – reflect
29. Ears – brain
30. Sun – candle – moon – mirror
31. Hearing – bats and dolphins
32. Wings – code
33. B – A
34. Kinetic
35. Kinetic
36. Potential – kinetic
37. Decrease
38. Hearing – echolocation
39. Distance – time
40. Gravity of earth
41. Behavioral
42. Enemies - camouflage
43. Motion – stops
44. Kinetic
45. Blurry
46. Cats – panther chameleon
47. Brown – black – white
48. Potential energy
49. Greater
50. Nervous
51. Echolocation
52. Faster
53. Touching
54. Distance – time
55. Potential – increase
56. Polar pear – penguin
57. Bats – dolphin
58. Sight – heat
59. Increase
60. Distance – time
61. Vibration – hand
62. Longer
63. Kinetic
64. Fats – kinetic
65. Sight – hearing
66. friction
67. Straight
68. Energy
69. Blood vessel
70. Chemical – heat
71. Faster
72. Longer
73. Hearing
74. Nose
75. Kinetic
76. Reaction time
77. Opaque
78. Brain
79. Cow
80. Transparent
81. Sun

✹(3) Put (√) or (X) :

1. (√)
2. (√)
3. (√)
4. (X)
5. (X)
6. (X)
7. (X)
8. (X)
9. (√)
10. (√)
11. (√)
12. (√)
13. (√)
14. (X)
15. (√)
16. (X)
17. (√)
18. (X)
19. (√)
20. (X)
21. (√)
22. (√)
23. (√)
24. (X)
25. (√)
26. (√)
27. (X)
28. (X)
29. (√)
30. (X)
31. (√)
32. (X)
33. (X)
34. (√)
35. (√)
36. (X)
37. (√)
38. (√)
39. (√)
40. (√)
41. (√)
42. (X)
43. (√)
44. (√)
45. (X)
46. (X)
47. (√)
48. (√)
49. (√)
50. (√)
51. (√)
52. (X)
53. (√)
54. (X)
55. (X)
56. (√)
57. (X)
58. (√)
59. (√)
60. (X)
61. (X)
62. (X)
63. (√)
64. (X)
65. (X)
66. (X)
67. (X)
68. (√)
69. (√)
70. (√)
71. (√)
72. (√)
73. (√)
74. (X)
75. (X)
76. (X)
77. (√)
78. (√)
79. (√)
80. (X)
81. (X)
82. (√)
83. (X)
84. (X)
85. (X)
86. (√)
87. (√)
88. (X)
89. (√)
90. (X)
91. (X)
92. (√)
93. (√)
94. (√)
95. (√)
96. (√)
97. (√)
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99. (X)
100. (X)
101. (√)
102. (√)
103. (X)
104. (X)
105. (√)
106. (√)
107. (√)
108. (√)
109. (X)
110. (X)
111. (X)
112. (√)
113. (√)
114. (√)
115. (X)
116. (X)
117. (√)
118. (X)
119. (√)
120. (√)
121. (√)
122. (√)
123. (√)
124. (X)
125. (√)
126. (√)
127. (X)

✹(4) Correct the underline

1. Inhalation
2. Writing
3. Communic ation
4. Hearing
5. Acacia
6. Slower
7. Writing
8. Dogs
9. Light
10. Energy
11. Inhalation
12. Food
13. Reed
14. Brain
15. Pulling
16. Water lily
17. Chemical
18. Gills – lung
19. Kinetic
20. Dots
21. Brain
22. Energy
23. High
24. Chemical
25. Two
26. Increase
27. Decrease
28. Ears
29. Eight
30. Downward
31. Different
32. Different
33. Humans
34. Heat
35. Kinetic
36. Work
37. Light
38. Kinetic
39. Pulling
40. Friction
41. Gravity
42. Different
43. Equal
44. Penguin
45. Decrease
46. Legs
47. Desert

✸(5) Match :

1

1- b **2- e** **3- f** **4- a** **5-c**

2

1- b **2- d** **3- a**

3

1- b **2- d** **3- c**

4

1- b **2- a** **3- c**

5

1- c **2- b** **3- a**

6

1- c **2- b** **3- a**

7

1- b **2- c** **3- d** **4- a**

8

1- b **2- d** **3- a**

Final Revision for first term

Complete the following sentences using the following words:

(1) (spines – cool – hot – warm blood – darker – structural – cold blood – polar)

1-In penguins, blood vessels bring ……. upward from the feet, but bring ……. downward to the feet.

2-Starred agama lizards live in extreme ……. weather.

3- Both of arctic fox and pine tree survive in ……. habitat.

4-The cactus plant has ……. that protect it from being eaten by desert animals, and this is a form of ……. adaptation.

5-Animals that live in forests have fur …… than that of polar animals.

6-A burrow is an excellent place for fennec fox to stay …… during day.

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(2) (eyes – tongue – salt – structural – ears – behavioral)

1-The fat layer under the animal's skin to warm it is ……. adaptation.

2-Some animals migrate at certain times of the year. This type of adaptation is called ……. adaptation.

3-Mangroves trees grow in ……. water.

4-Chameleons use their ……. to see the food, while foxes use their ……. to hear noise of predators.

5-Long sticky ……. helps panther chameleon to hunt insects.

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(3) (Esophagus – teeth – acacia – respiratory – water – behavioral – fat)

1-Producing a poison by ……. tree to make a bad tasty leaves belongs to ……. adaptation.

2-The trunk in acacia tree stores …… as the hump in camel stores …….

3-……. is a tube with muscles that help push food into the stomach.

4-The two lungs are one of the important organs in the ……. system.

5-Crushing the food in your mouth is the function of ……..

(4) (nervous – sounds – structural – taste – echolocation – hair)

1-Sight and …… are the senses to distinguish between milk and water.

2-The common thing between bats and dolphins is the use of ……. property through their sense of hearing.

3-The brain is part of your ……. system.

4-The presence of ……. on jerboa's feet and toes help it catch sand, and this considered as ……. adaptation.

5-The Egyptian mongoose makes ……. to send messages to other mongoose.

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(5) (sight – transparent – eye – rough – light)

1-The organ responsible for the sense of sight is the …….

2-Both humans and animals need a source of ……. to see.

3-When light is reflected off a surface in different directions, so that surface is …….

4-Lenses and glasses are considered ……. materials.

5-When watching a football game you use your senses of hearing and ……

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(6) (moon – night vision goggles – Light – owl – sun)

1-The main source of light energy on the earth is the …….

2-There are some similarities between ……. and tarsier in structural adaptation of their eyes.

3-The ……. is not a source of light.

4-……. energy affects sensory receptors in the eye, causing a vision.

5-Humans use the ……. to see in the dark.

(7) (high pitched – smelly – sound – sight – echo – code)

1-The different languages are considered as …….

2-Dolphins and humpback whales are sea animals that use ……. energy in their communication.

3-Both of honeybees and fireflies use the sense of …… to communicate.

4-The blind person's cane and bats emit ……. sound that bounces off in the form of ……..

5-Both of acacia tree and ants use ……. messages to communicate.

---

(8) (increases – balanced – Energy – gravity – unbalanced)

1-The force acting on body is ……., so object move.

2-The force that pulls objects toward the center of Earth is ……..

3-When the force acting on object increases the motion of the object ……..

4-Object doesn't move when ……. force acting on it.

5-……. gives us a force that enables us to do work.

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(9) (elastic – thermal – Potential – light – electrical – Kinetic)

1-…….energy is the amount of energy that is stored in an object due to its position.

2-…….energy is the energy of an object due to its motion.

3-The energy stored in a compressed spring is …….potential energy.

4-Electrical lamp operates with …….energy that changes to ……. and ……. energy.

(10) (bigger – Airbag - increases - potential - more)

1-Fast cars cause damage ……. than slow cars.

2-In cricket game, the speed of the ball ……. when the player hits it.

3-……. is a big pillow in cars to land against during a crash.

4- The truck has engine ……. than that of car.

5-In Newton's cradle the ball stores ……. energy at the highest position.

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(11) (forward - increases – collision - decreases – kinetic)

1-When a car uses brakes to decrease its speed, its kinetic energy …….

2-By increasing the mass of the object the kinetic energy ……..

3-The moment where 2 objects hit in a forceful way is ……..

4-When the car stops suddenly driver's body continues to move ……..

5-Object has a big mass, has more ……. energy.

Complete the following sentences:

1-(Forest - Polar) bears blend in with snow through their white fur.

2-Butterflies that have a color like the color of the tree they live on are called this phenomenon (migration – camouflage).

3-One of the adaptations that help the animal protect itself from enemies is (blend in – extinction).

4-Arctic fox has (white – brown) fur in winter, while it has (white – brown) fur in summer.

5-Camouflage in panther chameleon takes place through its brightly colorful (scales – fur).

7-Eyes of chameleon move independently of each other, this is considered as (structural – behavioral) adaptation.

8-Most of sharks can live in (salt - fresh) water only, but bull sharks lives in both water.

9-(Giraffe – deer) is the only animal that may eat acacia leaves.

10- Wide leaves that float above the surface of the water are considered as adaptations of (desert – wetland) plants to get large amount of (sunlight – water).
11- Adaptation to store water is an important trait for plants that live in (wetland – desert) environment.
12- Kapok tree has fluffy (brown – yellow) seeds.
13- (Taproot – Buttress root) is a very long root grows downward to search for water.
14- Leaves of palm tree are tiny like leaves of (pine – acacia) tree.
15-(Taproot – Buttress root) is a large wide root grows up to firmly hold the tree.
16-One of the structural adaptation of water lily plant is that it has (tiny – wide) leaves.
17-The mouth breaks up food mechanically by chewing in which (Teeth only - Teeth and tongue) mix and grind food.
18-Animal (digestive – respiratory) systems are adapted to the type of food an animal eats.
19-The system that digests food to produce energy is (digestive – respiratory) system.
20-Food passes from mouth to stomach through a narrow tube known as (small intestine – esophagus).
21-The diaphragm rises up during the (Inhalation - Exhalation) process.
22-Humans have (lungs- gills) and take in oxygen gas from (air – water).
23-Fish breathe (Oxygen - carbon dioxide) gas which dissolved in water by (lungs- gills).
24- (Breathing - pollution) causes many problems for the lungs.
25- Amphibians are (endangered – extinct) species.
26-(Amphibians – Fish) have two different ways for breathing.
27-You can identify food which is not good through the sense of (hearing – taste).
28-Bats use (light – sound) as a means of communication with each other.

29- The (brain – stomach) is the command center of your body that sends messages to different parts of body for reacting to danger quickly.
30- The nervous system is connected by (nerves – veins) that transmit messages around the body.
31- The skin is an important organ of the (respiratory - nervous) system.
32- Your sensation of hot weather depends on the sensory receptors in the (skin – nose).
33- (Bats – Owls) have the ability to turn the head in all directions.
34- (Veins – Nerves) carries the message from your eyes to your brain when you see something.
35- The sensory receptors convert sensory information to (nerve signals – waves) for sending it to the brain.
36- Jerboa jumps in (straight – zigzag) paths to run quickly from danger.
37- Hopping of the jerboa in zigzag pattern to run away from danger is considered as a (structural – behavioral) adaptation.
38- The long hind legs of jerboa are considered as a (structural – behavioral) adaptation.
39- Closing our eyes quickly when a flash light falls on them suddenly represent (reflex action – camouflage)
40- The time taken for the body to receive information from the environment (reflex action - response time)
41- If an animal eyes glow at night, this means its eyes must contain (lens - tapetum lucidum) that reflects light like a mirror.
42- I saw an eye shining in the dark, this animal could be (bat – cat)
43- Nocturnal animals that are adapted to see at night have (larger – smaller) eyes than the human eyes.
44- Paper and a piece of cloth are considered (smooth – rough) surfaces.
45- (Shiny smooth – Dark rough) materials regularly reflect light better.
46- When light is obscured by an opaque object (echo - Shadow) is formed.
47- (Reflection – Refraction) of light from objects is what lets the (brain – nerves) process and perceiving what our eyes see.

48- Changing the pattern of lighting up in fireflies beetles is an example of (structural – behavioral) adaptation.
49- Reading and writing are common types of communication in (animal – human) world
50- Honeybees use (flash light – movements) to communicate with each other.
51- The humpback whales sing a wide range of tones and a series of songs for (hide from enemies – communication).
52- Both humpback whales and Morse code can use (sound – light) energy to communicate.
53- Bees and humans are similar in communication through (sounds - movements).
54- In Morse code the (long – short) beeps known as dots, while (long – short) beeps known as dashes.
55- Traffic lights depend on the sense of sight in communication like (fireflies - dolphin).
56- The movements of scout honeybee represent a (code – camouflage).
57- From the organs that we can use to send or receive the code (heart – eyes).
58- The scout honeybee makes (1 – 3) round dance if the flower is very close.
59- The songs of Humpback whales have (high – low) pitched sounds in summer which is (mating – feeding) season.
60- The (scout ant – nurse ant) is the ant responsible for searching for food.
61- (Static – Moving) body doesn't move unless there's a (force – energy) acting on it.
62- When the position of a body changes according to a fixed point, the body (stops – moves).
63- (Energy – Force) is a push or pull that is applied to an object to change its (mass – position).
64- The moving object stop when it face another force that is (equal – unequal) in magnitude and in (opposite – same) direction.
65- Rope of tug war game moves toward the (greater – smaller) force when (balanced – unbalanced) force acting on it.

66- When we push a car gently, the car moves (slower – faster) and covers (short – long) distance.
67- (Energy – Work) is a force that causes an object to move a distance.
68- Opening a drawer is (push – pull) force, while kicking a ball is (push – pull) force.
69- The shockwave truck has been fitted with (2 – 3) jet engines to increase its (mass – speed).
70- When you sit on the chair without moving. What is the name of the force that pulls you downward? (friction – gravity)
71- The seesaw moves up and down because the forces that act on it are (balanced – unbalanced).
72- The friction force acts in (same – opposite) direction of the object's movement to (stop – move) it.
73- The shockwave truck installed with 3 (jet engines – parachutes) to stop it, and this is the same idea of stopping a moving (truck – rocket).
74- The motion of the car is opposed by the (gravity – friction) of the air.
75- At the top of ramp object stores (gravitational- chemical) potential energy.
76- When you hold a ball it stores (potential – kinetic) energy, but when you let it falls down to the ground the ball has (potential – kinetic) energy.
77- When a person pushes a car forward, his body begins to sweat heavily because his body (consumes - increases) his stored energy.
78- Light and sound energies belong to (potential – kinetic) energy.
79- In gas oven the natural gas stored (chemical – electrical) energy that changes to (sound – thermal) energy.
80- When the roller coaster slides down fast, its kinetic energy (decreases –increases).
81- The speed of roller coaster when it moves toward the top of the hill is (more – less) than that when it moves down the ramp.
82- As the height of an object from the earth's surface increases, its potential energy (decreases –increases).

83- Which formula can be used to calculate speed?
(distance/time – time/distance)

84- The speed is a measurement of how (long – fast) something is moving.

85- Object that move faster has more (potential – kinetic) energy.

86- When Malak travels with her bicycle a distance of 30 km in 2 hours, then she is moving at a speed of (20 km/hr. – 15 km/hr.).

87- A horse is faster than a human, as the human covers a (less – greater) distance at the same time.

88- (Kilometer – Meter) is a measuring unit for long distances.

89- If the acting forces on a moving body decrease, the speed of this body (decreases – increases).

90- As the angle of inclination increases the speed of object (increases – decreases) and its (potential – kinetic) energy increases.

91- The speed of objects differs according to their (mass – color).

92- Object moves a given distance in a shorter time is moving at a (greater – slower) speed.

93- Which of the following consumes less fuel? (a truck – a small car)

94- Car seat-belt is used to keep the driver from moving (forward – backward) during collision.

95- A train has kinetic energy (more than – less than) the car.

96- Kinetic energy is (lost – transferred) during collision.

Choose the correct answer:

1- How do adaptations affect the survival rate of a species?

a) Adaptations increase the survival rate of a species.

b) Adaptations decrease the survival rate of a species.

c) Adaptations change all the organism's structures.

d) Adaptations change all the organism's behaviors

2- Adaptations include changes that …….. in the environment.

a) reduce chances of survival

b) improve species survival

c) reduce life span for individuals

d) reduce reproduction process

3-Which would die if it didn't have the right adaptations for survivals in its environment

a)a rock b) a car c) a tree d) air

4-What happens to organisms that don't have the right adaptations for the conditions in their environment

a) the population increase b) the organisms die off

c) the population stays the same d) no changes occur

5-If the number of an animal species becomes zero, this mean that this species

a) becomes endangered b) becomes extinct

c) will survive d) going to be extinct

6-Antelope that live in wide open plains must adapt by using

a)thick fur to keep its body warm

b) long legs to help them run fast

c)bright color to help them attract the mate

d) hard outer shell to protect themselves

7-..... is the covering body of arctic fox.

a) heavy hair b) heavy skin c) thick fur d) thick feathers

8-Fennec fox has ……. to get rid of excess heat.

a) short ears b) long ears c) long tail d) tongue

9-An animal that has the ability to hide in the desert.

a) caracal b) fennec fox c) lizard d) all of them

10- Fennec fox and caracal have ……. that help them blend in with desert landscape.

a) colorful scales b) sandy colored feathers

c) sandy colored fur d) thick white fur.

11- When panther chameleon stands within leaves of trees, the colors of its scales changes into …… color.

a) white b) green c) blue d) black

12- The different colors of fur in different types of bears help them to

a) respire in their environment. b) adapt their habitat.

c) communicate with other animals. d) look for shade area.

13- Animals that live in a hot environment have ……. ears to allow heat to escape for cooling.

a) short b) long c) small d) sharp

14- The color of fur of arctic foxes changed according to season, this is considered as

a)Change of the way of breathing. b) Structural adaptation.

c) Behavioral adaptation. d) Change of the way of feeding.

15- The starred agama lizard keeps cool during a hot sunny day in desert by

a) eating green vegetables b) drinking more water

c) secreting more sweat d) finding a shade area

16- Which of the following sentences doesn't represent the camouflage adaptation

a) thick downy feathers of penguins

b) white fur of polar bears

c) colored scales of some lizards

d) sandy-colored fur of fennec foxes

17- Water lily has wide leaves to absorb a large amount of

a) Water b) sunlight c) nutrients d) fats

18- Desert plants are characterized by all the followings except that they

a) store water b) have wide leaves

c)have long roots d) have sharp spines

19- The roots of palm plants help them to

a) Stand strong against the wind

b) reach the underground water

c) Fixation of plants in the soil d) all the above

20- If a plant grows in a snowy habitat, so it needs all the following characteristics except …… to adapt.

a) short branches b) triangular shapes c) wide leaves d) needle leaves

21- If a plant grows in a rainforest, so it needs ……..…. to adapt for getting more sunlight.

a) small roots b) very tall trunk

c) sharp spines d) all previous answers

22- The two trees that can send smelly messages through the wind are

a)Kapok and water lily trees. b) Acacia and palm trees.

d) Acacia and kapok trees. d) Mangrove and pine trees.

23- All of the following properties protect acacia leaves from being eaten by animals except that

a) they are high enough b)they are brightly colored

c)they are guarded by sharp spines d) they produce poison

24- The needed energy to perform different functions of a living organism is obtained from

a)Breathing only. b) Food processing only.

c) Breathing and running. d) Food processing and breathing.

25- In the mouth teeth and tongue break down the food with the help of

a) Saliva b) Pancreatic juices c) Liver juices c) Stomach acids

26- Stomach is a part of the digestive system that

a) chewing food

b) converts solid food into liquid

c) absorbs nutrients from food.

d) delivers food into the esophagus.

27- All the following are similarities between human and fish respiratory system except

a)Both breathe in oxygen. b) Both have lungs.

c) Both breathe out carbon dioxide.

d) In both blood vessels carry oxygen to the body.

28- Fish extracts oxygen out of the water by

a) skin b) gills c) lungs d) fins

29- From the negative effects of human activities on the human health are

a) lung damage and asthma b) heart problems and wounds

c) lung damage and wounds d) asthma and wounds

30- To know if a cup of water is hot or cold we need to use the sense of

a) taste b) hearing c) touch d) smell

31- The sharpest sense that dolphins have is the sense of

a) taste b) hearing c) touch d) smell

32- To detect the place of a table in a completely dark room you need to use the sense of

a) taste b) hearing c) touch d) smell

33- Bat is ……. animal.

a) nocturnal b) morning c) harmful d) wingless

34- Owls have all the following properties to sense distant preys except

a) large eyes b) bowl-shaped face

c) head rotates in all directions d) weak sense of hearing

35- All of the following are components of the nervous system except

a) spinal cord b) lungs c) brain d) nerves

36- The two organs that make up the central nervous system are

a) the spinal cord and the brain. b) the nerves and the veins.

c) the veins and the brain.

d) the spinal cord and the backbone.

37- We close our eyes when a flash light falls on them suddenly. The two systems involved in this process are

a) Nervous and respiratory. b) Nervous and muscular.

c) Circulatory and muscular. d) Nervous and excretory.

38- Imagine that you touch a cube of ice with your finger. Where this message is processed and translated?

a) Finger b) Hand c) Brain d) Nerve

39- Which of the following is a source of light?

a) The moon b) The eyes c) Fire d) Mirror

40- Which statement best explains why you can see yourself in a mirror?

a) Light is reflected as it passes through the mirror.

b) Light is reflected, bounce off the mirror.

c) Light is refracted, bounce off the mirror.

d) Light is reflected as it absorbed by the mirror.

41- When light falls on a dark surface

a) the surface absorbs the light. b) the light is refracted.

c) light passes through it. d) nothing happens.

42-All the following have structural adaptation in their sense of sight so it is strong except

a) Owl b) Fishing cat c) Bat d) Panther chameleon

43-There is a tapetum lucidum in all of the following except

a) the horse b) the cat c) the human d) the deer

44-Night vision goggles look like …….. that present in nocturnal animals.

a) Pupils b) Nerves c) Tapetum lucidum d) Blood vessels

45-Which of the following allows the light pass through it?

a) moon b) wood c) glass window d) plastic

46-Painted surface …….. the incoming light rays.

a)Absorbs only b) Reflects only

c) Allows to pass d) Absorbs and reflects

47-Raise the thumb up or lower it down a kind of …….

a) colors b) codes c) lights d) waves

48- All the following are forms of codes, except

a) Faces expressions b) Writing

c) Colors of traffic light d) swimming

49-To communicate through the sense of sight we need

a) hearing music b) making sound

c) moving d) availability of light

50-You could determine how high music sound by

a) sound style b) sound frequency c) pitch of sound d) sound type

51-……. Can communicate by displaying light.

a)All animals b) All plants

c) All plants and animals d) Humans and some animals

52-Animals can communicate with each other through

a) sounds and lights b) talking c) reading d) writing

53-Humans can communicate using all the following except

a) sound b) light c) movements d) flying

54-Which of the following communications uses the sense of sight only?

a)Watching TV. b) Flashing light of fireflies.

c) Echolocation in dolphins. d) Using the cell phone.

55- Which of the following communications uses the sense of hearing only?

a) Rescue flare. b) Flashing light of fireflies.

c) Echolocation in bats. d) Using the cell phone.

56- When does the ball on the ground move?

a)It won't move. b) when a force acts on it.

c) when light falls on it. d) when gravity increase.

57- Which of the following indicate motion?

a) bicycle b) sunlight c)running water d) guitar string

58- When a body moves forward, the change that occurs is in ……..

a) the position of the body. b) the size of the body.

c) the mass of the body. d) the Earth's gravity.

59- Objects need a force to move, this force is called …….

a) pushing force only b) pulling force only

c) pushing and pulling together d) the gravity only

60- The body moves slow or fast or change its direction due to a ……..

acting on it.

a) force b) wind c) gravity d) height

61- All the following considered as force except……..

a) electric b) gravity c) push d) friction

62- When we push or bull a car, this need ……..

a) weight b) mass c) height d) energy

63- The force that makes the ball in the air fall down to the ground is

a) friction b) gravity c) push d) light

64- The force that occurs when objects rub against each other is ……..

a) speed b) friction c) gravity d) wind

65- All of the following are examples of pulling force except

a)open a drawer b) kicking a ball

c) lifting a bag d)gravity

66- All of the following are examples of pushing force except

a)close a drawer b) kicking a ball

c) lifting a bag d) press on electrical switch

67- When ball stands on the ground without moving, the forces acting on it
a) balanced b) unbalanced c) not equal d) pushing up
68- The amount of energy required to move an object through the force acting on is called
a) force b) work c) gravity d) pushing
69- When you clap your hands, kinetic energy of your hands becomes
a) sound energy only b) heat energy only.
c) sound energy and heat energy. d) chemical energy.
70- Which ball has kinetic energy but not potential energy?
a) a ball rolling down a ramp b) a ball sitting on a high shelf
c) a ball bouncing up and down d) a ball rolling on a flat sidewalk
71- Which type of energy change occurs when a person rides a bike?
a) heat energy changes to potential energy
b) chemical energy changes to kinetic energy
c) solar energy changes to chemical energy
d) kinetic energy changes to nuclear energy
72- Which of the following can store energy?
a) battery b) wire c) plastic d) rubber
73- The chemical energy stored in batteries is considered a form of …….
a) kinetic energy b) potential energy
c) electrical energy d) mechanical energy
74- Heat energy is a type of
a) kinetic energy b) potential energy
c) electrical energy d) chemical energy
75- Potential energy of an object depends on
a) its mass only b) its shape
c) its height from the earth's surface only
d) its mass and its height from the earth's surface
76- In …….. electrical energy changes into heat energy.
a) battery b) electric iron c) radio d) hand bell
77- When roller coaster stops its kinetic energy
a) increased b) decreased c) doesn't change d) becomes zero

78- The roller coaster has the most energy of motion when it

a) moves up to the top of hill b) moves down along the hill

c) stops at the top of hill d) stops at the bottom of hill

79- Scientists classify all forms of energy into 2 types which are

a) chemical energy and kinetic energy

b) potential energy and kinetic energy

c) potential energy and electrical energy

d) sound energy and light energy

80- Chemical energy can be stored in

a) food b) batteries d) fuel d) all the previous

81- How is speed measured?

a) distance traveled per unit of time

b) time per unit of distance traveled

c) mass per unit of distance traveled

d) volume per unit of mass

82- If a Car covered a distance of 10 meters in a time of 2 seconds, so the speed of the car is

a) 50m/sec. b) 20m/sec. c) 5m/sec. d) 2m/sec.

83- Gana is going down the slide. Her mother gives her a push. How does the push affect her motion down the slide?

a) The push decreases her speed.

b) The push increases her speed.

c) The push does not affect her speed.

d) The push stops her downward motion.

84- The amount of kinetic energy of an object increases as …….increases.

a) speed only b) mass only c) force only d) all the previous.

85- Which one of the following may cause the most damage?

a) A fast and heavy Vehicle. b) A slow and light Vehicle

c) A Big Vehicle. d) a and c

86- …… is (are) from the most important equipment during collision.

a) Brakes b) Car seat-belt c) Air bag d) b & c

87- Air bags are made of ……. material.
a) thin b)rubber c) nylon d) a and c
88- From the elements which cause danger while driving cars.
a) car tires b) seatbelts c) fast driving d) no correct answer
89- The collision between the bat and the ball results in ……..
a) Kinetic Energy b) Sound Energy
c) electric energy d) a and b.
90- Fast objects cause ……..
a) great damage that can be repaired.
b) great damage that can't be repaired.
c) small damage that can be repaired.
d) small damage that can't be repaired.
91- During collision, kinetic energy …… .
a) transfers from the slow object to the fast object.
b) transfers from the fast object to the slow object.
c) is destroyed and lost in the air.
d) changes into potential energy.
92- The effect of collision depends on the …… of the moving objects.
a) speed b) direction c) color d) a and b
93- The effect of collision increases by …… the speed of the moving object.
a) increasing b) decreasing c) keeping d) no correct answer.
94- The collision between two moving objects produces …… energy.
a) kinetic b) heat c) sound d) all the previous.
95- During the collision of moving bodies, …… .
a) energy transfer occurs. b) energy changes occur.
c) damage occurs. d) all the previous.
96- The car with speed …… has the highest kinetic energy.
a) 100 km/h b) 80 km/h c) 60 km/h d) 40 km/h
97- The kinetic energy of an object sliding on a ramp depends on the …….
a) angle of the ramp. b) mass of the object.
c) height of the ramp. d) all the previous.

98- In Newton's cradle the ball stores potential energy when ……

a) the ball is raised up. b) you leave the ball.

c) the ball hits the 1st other ball. d) no correct answer.

99- In Newton's cradle the potential energy is converted gradually to kinetic energy when ……

a) the ball is raised up. b) you leave the ball.

c) the ball hits the 1st other ball. d) no correct answer.

100- By increasing the mass of the object …….

a) The consuming fuel increases. b) the kinetic energy increases.

c) cause more damage during collision. d) all the previous.

101- What happens to the direction of the ball when hit with a bat?

a) Stay constant. b) Moves in the same direction.

c) Moves in a different direction. d) no correct answer.

Write the scientific term:

1-A habitat in which living organisms live. (……)

2-Is a change over generations that help organisms to survive and reproduce. (……)

3-Change in the structure of the animal's body. (……)

4-Change in the behaviors of a group of animals. (……)

5-Death of living organisms because they can't adapt to the conditions of its environment. (……)

6-The animal that has an insulating layer of fat and thick downy feathers. (……)

7-A type of adaptation that helps an animal to hide. (……)

8-The animal that panting to lower its body temperature. (……)

9-A feature in bull shark, in which the upper surface of its body is darker than its lower surface. (……)

10-A tree produces a poison to make the leaves taste very bad to defend itself. (……)

11-Liquid that moistens food in mouth to facilitate swallowing. (……)

12- The organ in which food is broken down into soupy liquid. (……)
13- The organ that absorbs the food nutrients to move into the blood. (……)
14- The organ that absorbs water from undigested food. (……)
15- The organ through which solid wastes of digestion leave the body.(..……)
16- A gas presents in air and water and is very important for breathing process. (……)
17- The property that depend on the sense of hearing through which dolphins locate their preys under water. (……)
18- Animals that becomes active at night. (……)
19- The property related to the bouncing of sound waves back when the sound waves hit objects. (……)
20- A flying mammal that use echolocation to locate its prey. (……)
21- The main control center of the body. (……)
22- Part of the nervous system passes through the backbone, and carries messages from body to brain and vice versa. (……)
23- Small branches from the spinal cord that distributed throughout all parts of the body. (……)
24- A desert rodent with a small body, very large ears and small eyes. (……)
25- An animal that can escape from enemies because of the length of its hind leg. (……)
26- The time taken by jerboa to react to danger. (……)
27- Messages that are so fast that you can't realize it. (……)
28- A membrane on the back of eyes of some nocturnal animals that helps them have excellent night vision. (……)
29- Tiny monkey from mammals with length about 10 centimeters.(……)
30- The visible form of energy. (……)
31- Anything that gives off its own light. (……)
32- Objects that allow light to pass through. (……)
33- Objects that don't form shadows. (……)
34- Objects that don't allow light to pass through. (……)

35-Objects that form shadows. (……)
36-Information that is transformed into another representative form.(……)
37-Small winged beetles that use their wings to flash. (……)
38-A pattern that has a meaning. (……)
39-A communication system that depends on sound or light energy and use dots and dashes to represent letters of alphabet. (……)
40-The bees responsible for searching for food. (……)
41-Ants sending smelly message when there is a shortage of food. (……)
42-A simple tool used by blind people to walk safely. (……)
43-A change in the position of an object relative to a fixed point.(……)
44-The ability to do work or make a change. (……)
45-A force that moves an object away from you. (……)
46-The force that tries to slow or stop an object moving on a surface. (……)
47-The form of energy that increases when the speed of an object increases. (……)
48-A type of fuel that is used inside gas oven to obtain thermal energy. (……)
49-A type of fuel that is used inside car to obtain kinetic energy.(……)
50-The distance travelled in a certain amount of time. (……)
51-A very heavy steel ball that helps knock down walls. (……)

Put (√) or (X) then correct the wrong:

1-Penguins have special blood vessels in their feet that help them survive in polar region. ( )
2-Penguins have no feathers on their feet. ( )
3-The feet of the penguin freeze in cold winter. ( )
4-Animals digging trenches is a form of structural adaptation. ( )
5-The white fur of the arctic fox helps it to blend in with snow. ( )
6-The bodies of fennec foxes, penguins, and caracals are adapted to live in extreme hot climate. ( )

7-The fur that some animals possess to protect them from the cold is a behavioral adaptation. ( )
8-Bull sharks have less competition for finding food in fresh water. ( )
9-Frogs are reptiles while panther chameleon is amphibians. ( )
10-Animals can't eat Barbary fig due to its sharp spines. ( )
11-Pine trees live in desert habitat and have needle leaves. ( )
12-Mangrove tree adapt to resist water waves by having long strong leaves. ( )
13-Kapok tree has hand shaped leaves. ( )
14-Acacia tree grow in Amazon forest. ( )
15-Plants need long roots that extend deep into the soil to survive in the water scarce. ( )
16- Plants have two types of adaptation structural and behavioral. ( )
17- All living organisms need food and oxygen gas to get energy. ( )
18- Food turns from complex to simple during digestion. ( )
19- Esophagus does not absorb food. ( )
20- No digestion takes place in the large intestine. ( )
21- Exhaled air is loaded with oxygen. ( )
22- The respiratory system is responsible for the entry of air into the body. ( )
23- Both salamander and fish can breathe through lungs. ( )
24- floods is one of the natural changes which cause severe damage to the agricultural field. ( )
25- Man cannot restore the ecosystem with any way. ( )
26- Nerves are constantly receiving information from the senses and sending them to the brain, even while a person is sleeping. ( )
27- The nervous system works separately from the five senses. ( )
28- Seeing with our eyes is a way to help us gather information about the environment around us. ( )
29- The ear is the sense organ responsible for seeing objects. ( )
30- Every part of the nervous system can work individually. ( )
31- Foxes have a strong sense of hearing and sight. ( )

32- The skin is the sensory organ that makes you feel the smooth of the cloth. ( )
33- Dolphins have a sharp sense of hearing and sight. ( )
34- The brain sends automatic signal so that we can breathe. ( )
35- Bats and snakes can see well in the dark. ( )
36- Your sensation of thunder and lightning depends on your senses of hearing and sight. ( )
37- The time taken by jerboa to react to danger is less than one second. ( )
38- The body can respond to more than one external stimulus at the same time. ( )
39- In a completely dark room, some light entering the eyes. ( )
40- Eyes of nocturnal animals are adapted to see in the total darkness. ( )
41- Some animals can see at night, such as a wild cat. ( )
42- You can see a green ball inside a transparent glass box. ( )
43- Wood is a transparent object that allows light to pass through it. ( )
44- Fishing cat and tarsier can detect very faint light levels. ( )
45- The tarsier feed on insects, small lizards, and birds. ( )
46- The Egyptian mongoose makes a group of sounds to communicate with other mongoose. ( )
47- Echolocation is a type of communication between owls. ( )
48- In order for the code to be translated, the brain must identify it. ( )
49- Red and green traffic lights are codes. ( )
50- Fireflies are wingless beetles. ( )
51- It is possible for human to interact with fireflies. ( )
52- Animals can use more than one sense to communicate with each other. ( )
53- When we push a car hardly, the car moves slower and covers long distance. ( )
54- The stopping object can't move until force acting on it. ( )
55- Force and energy are different but they are related to one another. ( )
56- When object moves upward the force acting on it is balanced. ( )
57- A force always causes movement. ( )

58- A force is a push or a pull. ( )
59- A static ball moves on the ground if it is affected by a force. ( )
60- The rotation of Earth around the sun is easy to be seen. ( )
61- The shockwave truck is one of the fastest and most powerful trucks in the world. ( )
62- If you move a chair through a distance, there is a work done. ( )
63- Human needs energy stored in food to do activities. ( )
64- Moving object has higher potential energy. ( )
65- In electric lamp the electrical energy changes to light and thermal energy. ( )
66- When you kick a ball, kinetic energy is produced. ( )
67- Existing energy can be destroyed or lost. ( )
68- In the electric fan, the kinetic energy is converted into electric energy.( )
69- Energy can be stored in many different forms. ( )
70- Energy can't be changed from one form to another. ( )
71- The moving objects only have energy, while the objects that don't move have no energy. ( )
72- The faster the speed of an object, the shorter distance it can travel in a set time. ( )
73- Energy is neither destroyed nor created from nothing. ( )
74- The faster the speed of an object, the less amount of time it takes to travel a set distance. ( )
75- The speed of an object increases as the amount of time traveled increases. ( )
76- The speed of an object is affected by the direction of this moving object. ( )
77- The speed of an object is measured in (m/sec) and (km/hr). ( )
78- All objects move at similar speeds around us. ( )
79- If you want an object to go slower, you must reduce its kinetic energy.( )
80- The more force applied to an object, the faster it goes. ( )
81- As the speed increases the potential energy increases. ( )
82- Objects has a big mass has less kinetic energy. ( )

83-Energy can be transformed easily from one form into another form. ( )
84- Light objects cause damage more than heavy objects. ( )
85-Kinetic Energy is transferred when two objects hit each other. ( )
86-Faster and heavier objects have more energy than slower lighter objects. ( )
87-The speed and kinetic energy of moving object on a ramp increased by decreasing the angle of the ramp. ( )
88-Slow moving object has less energy and causing less damage. ( )

Correct the underlined words:

1-Short ears of arctic fox belong to behavioral adaptation.
2-Panting in dogs and fennec fox belongs to structural adaptation.
3-Caracals have colorful scales to adapt their desert landscape.
4-Camouflage in fennec foxes takes place through their white colored fur.
5-Thick fur helps polar bear to stay cool in cold environment.
6-White fur helps bears to blend in with the trees while hunting.
7-Fishing cat is similar to fennec fox in having sandy-colored fur.
8-Bull sharks have less competition for finding food in salt water.
9-Both of panther chameleon and kapok tree survive in polar habitat.
10- Both of fennec fox and palm tree survive in hot forest habitat.
11-In bull shark the lower surface of its body is darker than its upper surface.
12-Lizards are from mammals that are ancient type of animals.
13- The body of some types of lizard is covered with colored fur to blend in with colored rocks.
14- Kapok tree sends delicious messages to attract owls.
15- Adaptation to store water is an important character for plants that live in rainforest habitat.
16- When running and making an effort, the number of breathing times decreases.
17-Snakes use their sense of hearing to find their prey.
18- Animals use their digestive system to sense and process information.

19- The small intestine has tiny nerves to absorb the nutrients through its walls.
20- Pancreas and liver secrete juices that flow into large intestine to break down food into nutrients.
21- Amphibians live in dry environment.
22- When you determine a sweet or bitter taste, you have used your eyes.
23- Bats use their sense of smell to hunt and avoid obstacles.
24- The Egyptian jerboa is one of desert reptiles.
25- The brain responds to information sent by the sense of sight slower than information sent by the sense of hearing.
26- When you hear the fire alarm your eyes send a signal to the brain.
27- Nerves of nose and heart are connected directly to the brain.
28- Wood and carton are considered transparent materials.
29- The eye pupils of nocturnal animals are narrower than that of humans.
30- Owls and jerboa can't move their eyes in their sockets.
31- Light travels in zigzag lines in the form of light waves.
32- Things can't be seen through transparent objects.
33- Fireflies produce a physical reaction inside their bodies that allows them to light up.
34- Honeybees do a special dance by moving in a figure 6 pattern.
35- Scout ants sending smelly message if there is a danger nearby to protect the colony.
36- Parked car is affected by unbalanced force.
37- When you move object toward you this represents pushing force.
38- There is a gravity force between the car tires and the road that acts to decrease its speed gradually.
39- Potential energy is the gained energy during the motion of objects.
40- Pushing a car is an example of potential energy.
41- Gasoline contains electrical potential energy.
42- Electricity is a form of energy found in the food we eat.
43- Damage will be less severe when two cars collide in the opposite direction.
44- Heavy objects always have less kinetic energy.

Compare between:

(Carbon dioxide-downward-Relax-Increase-Contract-Oxygen-upward)

Point of comparison	Inhalation	Exhalation
Diaphragm movement	……., and move …….	……., and move …….
Size of chest cavity	……..	Decrease
The air rich in	……. gas	……..…… gas

Choose from column (B) what suits it in column (A):

1)

Column (A)	Column (B)
1- A common organ in the digestive and respiratory system.	a) Carbon dioxide
2- The process of pushing air in and out of the body.	b) Respiration
3- Branches inside the lung that resemble tree branches	c) Pharynx (throat)
4- A gas produced by respiration.	d) Diaphragm
5- A muscle that has an important role in the breathing process.	e) Bronchioles

1	2	3	4	5
……..	……..	……..	……..	……..

2)

Column (A)	Column (B)
1-Owl	a) Eyes glow to see at night.
2-Fishing cat	b) Use echo to locate preys under water.
3-Dolphin	c) The prey of the snake and hops to escape.
4-Bat	d) Have the same structure of eyes of owl.
5-Tarsier	e) The face shape collect and amplify different sounds.
6-Jerboa	f) Animal depends on body's sense of heat.
7-Snake	g) Sleep upside down and depend on echo of the sound to locate preys.

1	2	3	4	5	6	7
……..	……..	……..	……..	……..	……..	……..

3)

Column (A)	Column (B)
1-The visible form of energy that is transmitted in the form of waves.	a) mirror- like membrane
2-A structural adaptation in the eye that provides some animals with better vision at night.	b) Light
3-When an object falls from your hands.	c) Smell
4-When a foreign object is brought into your eyes	d) Using the sense of sight
5-Ants use it to sense and communicate	e) The reflex action occurs.

1	2	3	4	5
……..	……..	……..	……..	……..

4)

Column (A)	Column (B)
1-A way to communicate between some animals like bees.	a) Brain
2-Carry messages to the brain via the spinal cord.	b) Spinal cord
3-It is similar in its processing of information to a computer.	c) Nerves
4-Responsible for the transmission of commands through nerves to the muscles to contract.	d) Vibrating motion

1	2	3	4
……..	……..	……..	……..

5)

Column (A)	Column (B)
1-Used to knock down parts of a building.	a) Seatbelt
2-The air bag inflates automatically	b) after collision
3- Used in cars to keep body from moving forward.	c) sound energy
4- During collision, part of the kinetic energy changes into	d) Wrecking ball
5- The air bag deflates fast	e) during collision

1	2	3	4	5
……..	……..	……..	……..	……..

Place the sentences in order of how the information is processed by the brain

…..	Nerves in the body connect the sense organs to the brain.
…..	Information from the environment is received by a sense organ.
…..	The brain determines what to do with the information.
…..	The signal travels as electrical impulses from the organ to the nerves in the brain

Give reason for the

1-Adaptation is an important trait of living organisms.

- ……..

2-Some animals have the ability to make camouflage adaptation.

- ……..

3- Disappearance of some living organisms such as dinosaurs.

- ……..

4- The penguin's body has an insulating layer of fat and thick downy feathers.

- ……..

5- The polar bears (or arctic foxes) have thick fur.

➢ ……..

6-Forest bears have dark or brown fur.

➢ ……..

7-Polar bears (or arctic foxes) have white fur.

➢ ……..

8-Arctic fox has short ears and legs.

➢ ……..

9-Fennec fox has extra-large ears. (Fennec fox pants like dogs)

➢ ……..

10- Chameleons can move each of their eyes in a different direction.

➢ ……..

11- Panther chameleon has V-shaped feet and tail like a hand.

➢ ……..

12- Bull shark has sharp teeth.

➢ ……..

13- Bull sharks have less competition for finding food in fresh water.

➢ ……..

14- Desert lizard looks for shade during hot sunny days.

➢ ……..

15- The leaves of plants that float above the water surface are so wide.

➢ ……..

16- The shape of pine tree leaves is like a needle.

➢ ……..

17- Barbary fig has sharp spines.

➢ ……..

18- Kapok tree has large wide roots that grow up on its trunk.

➢ ……..

19- Kapok tree has hand-shaped leaves.

➢ ……..

20- Pine tree has a triangular shape and short branches.

➢ ……..

21- Saliva is very important in your mouth.

➢ ……..

22- The small intestine has tiny blood vessels.

➢ ……..

23- Gills are unique structural adaptation in fish.

➢ ……..

24- Amphibians are endangered species.

➢ ……..

25- Dogs are used in guarding.

➢ ……..

26- A dolphin can locate living organisms and things under the surface of the water.

➢ ……..

27- Bats cannot see in the dark, but they hunt their prey at night.

➢ ……..

28- Snakes depend on identifying their prey and catching them at night by sensing heat.

➢ ……..

29- Owls can hunt during night.

➢ ……..

30- The jumping jerboa can jump for long distances.

➢ ……..

31- Feet and toes of jerboa have hairs.

➢ ……..

32- Some animals have a structural adaptation in their eyes.

➢ ……..

33- Some animals like cats have the ability to see in the dark.

➢ ……..

34- Moon is not a source of light.

➢ ……..

35- You can see an object placed behind a glass cup.

➢ ……..

36- Mirror reflects light better than painted surface.

➢ ……..

37- You can't see an object placed behind a wood door.

➢ ……..

38- Fireflies produce a chemical reaction inside their bodies.

➢ ……..

39- Fireflies use flashing light to communicate.

➢ ……..

40- Humpback whales sing different songs.

➢ ……..

41- The songs of Humpback whales have high pitched sounds in winter.

➢ ……..

42- The hearing sense is very important for bats.

➢ ……..

43- If you push a ball on the table it moves for a distance till it stops.

➢ ……..

44- The speed of roller coaster increases when it moves down the hill.

➢ ……..

45- When a player kicks a ball it moves in air.

➢ ……..

46- When you hit a traffic sign post it may vibrate.

➢ ……..

47- Seatbelts are very important equipment in cars.

➢ ……..

48- The truck causes more damage than cars during collision although they move at the same speed.

➢ ……..

What happens if……?

1- The polar bears have thin fur instead of thick fur.

➢ ……..

2- Forest bears are coated with white fur.

➢ ……..

3- Arctic fox has brown fur in winter, while it has white fur in summer.

➢ ……..

4- A plant is taken from its original habitat and placed in another different environment.

➢ ……..

5- The small intestine is removed from the human body.

➢ ……..

6- Diaphragm moves downward during inhalation.

➢ ……..

7- Diaphragm moves upward during exhalation.

➢ ……..

8- Owl can't rotate its head in all direction.

➢ ……..

9- The structure of fishing cat's eyes is the same like human.

➢ ……..

10- Light falls on rough surface.

➢ ……..

11- A firefly wants to attract mates.

➢ ……..

12- The amount of food in ants colony decreases.

➢ ……..

13- The pulling forces of the two teams are equal in the tug-of-war game.

➢ ……..

14- If there were no energy on earth.

➢ ……..

15- Increasing the mass of an object that moves down a ramp.

(according to the kinetic energy)

➢ ……..

16- You turn on the T.V. (according to the change of energy).

➢ ……..

17- The roller coaster moves down the hill.

(according to the change of energy)

➢ ……..

18- You put a battery inside a flashlight then switch it on.

(according to the change of energy)

➢ ……..

19- The speed of a moving car increases. (according to kinetic energy)

➢ ……..

20- You let the ball of Newton's cradle moves toward the rest of balls.

(according to the change of energy)

➢ ……..

Answer the following questions:

1- Rabbits have long and strong hind legs that help them to jump quickly and escape when danger determine the type of adaptation.

Solution:

structural adaptation: ……

Behavioral adaptation: ……

2- The husky dogs live in a cold environment, while another type of dogs live in a hot environment. In your opinion, which one has thick fur? And why?

Solution:

- …….. that live in ……. environment.

– Because The thick fur ……..

3- Which figure shows the correct structure of blood vessels in the feet of penguins? Explain how do this adaptation help penguins survive in cold climate ?

Figure …….

Because …….

…….

…….

a) **b)**

4-Mohamed drives his bike and while that he hears a car behind him, he turns away so as not to hit it. Which system inside the body received a signal made Mohamed realize that?

…….

5-Adam hurt his toe when he climbed. How did he know that he had hurt his toe?

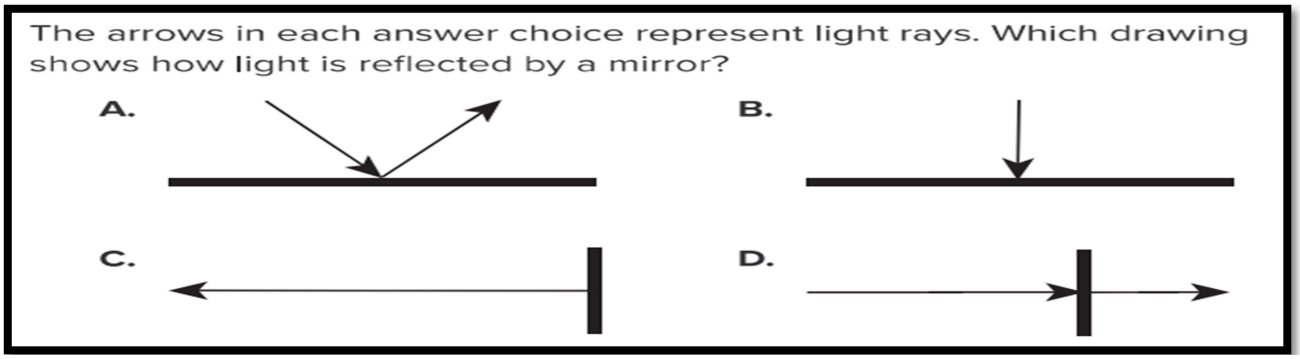
a) The nerves in his hurt toe sent a signal through his body to the brain.

b) The blood in his hurt toe sent a signal through his body to the brain.

c) Adam toes became very cold.

d) Adam toes became smaller.

6- choose the correct figure:

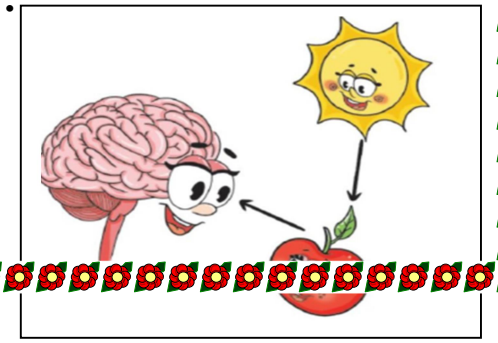


7- To see what was inside a box without having to open the box. What material should be used? (wood – mirror – transparent plastic – carton)

8- To prevent the light from entering your room, suggest some materials that you can use to cover the window? …….

9- look to the figure then complete:

The light falls on the …….. then it is

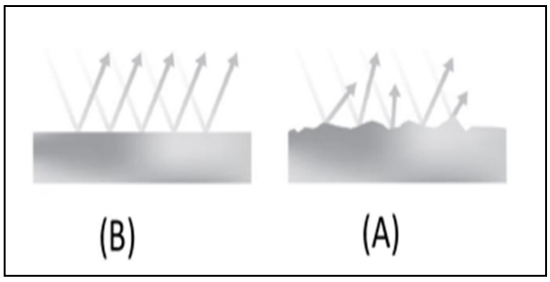


reflected on the eyes , so the eyes transmit

the message to …….. then he interprets it

and translates it, so we see the apple.

10- look to the figure then complete:

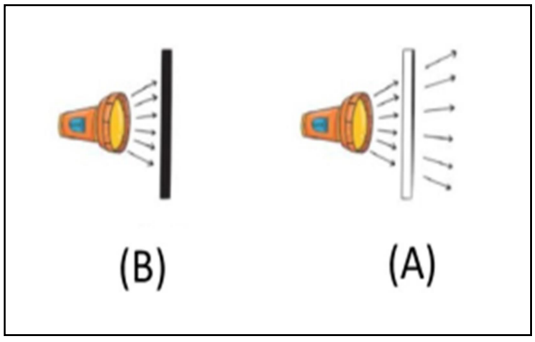


the surface represents the reflection of light

rays from a wooden spoon is ……..

Because it is a …….. surface.

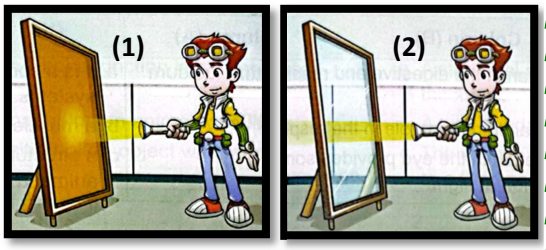
11- look to the figure then complete:



Object (A) is (transparent – opaque).

Object (B) is (transparent – opaque).

12-look to the figure then complete:



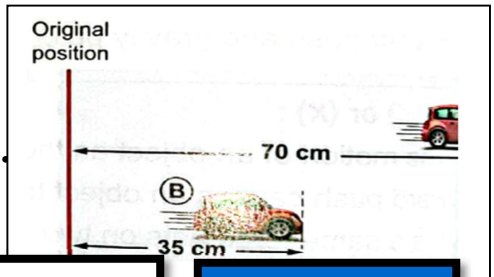
the figure represents a transparent object is ……..

the figure represents an opaque object is ……..

13- What is a common mean of communication between some animals and human?

➢ ……..……..……..……..……..

14- Which of these 2 cars is affected by a greater Force? Explain why?

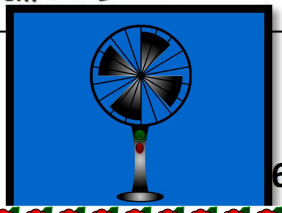


……..……..……..……

15-In picture (1) energy is changed from

…….. energy to …….. energy.

In picture (2) energy is changed from

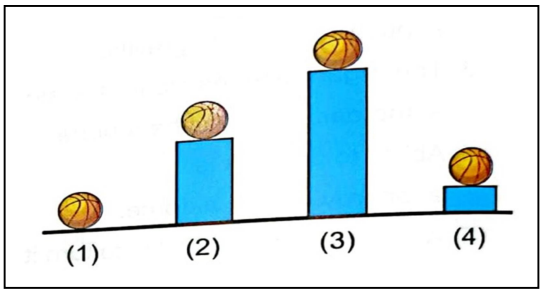


…….. energy to ……..energy.

(1) (2)

16- In the opposite picture position (3) represent the most (potential – kinetic) energy.

17- In the opposite figures which ball has the greatest potential energy?
Explain why?
……..……..……..
……..……..……..



18-In the opposite figure:

When the compressed spring is released, a change in energy occurs from …….. energy to …….. energy.

19-From the following figure complete:

(different – wooden – bat – sound – ball – increases – kinetic)

a) The boy uses a …….. bat to hit the ball.

b) …… energy is transferred from the …… to the …….

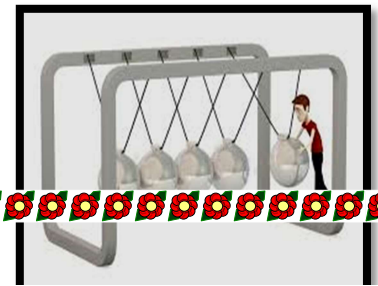
c) When the boy hit the ball the speed of the ball …….. in …….. direction.

d) During collision some of the kinetic energy changed into …….. energy.

20-From the following figure that shows Newton's cradle complete:

a) When the ball is raised up, it stores …… energy.

b) When leaving the ball moves in the direction of the



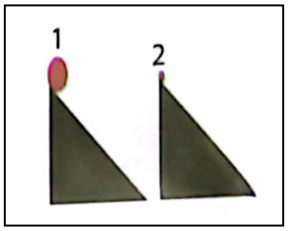
rest balls the …….. energy decreases and

…….. energy increases.

c) During collision some of the kinetic energy changed

into …….. energy due to the friction.

21- In the opposite figure which ball will reach the ground first? Explain why?



……..……..……..……..

……..……..……..……..

22- Calculate that speed of a runner that covers 150 meters in 10 seconds.

……..……..……..……..……..……

……..……..……..……..……..……

23- Calculate the speed of a train that covers 600 kilometers in a time of 6 hours.

……..……..……..……..……..……

……..……..……..……..……..……

24- If the two cars moved at the same time for 20 seconds, car (A) covered a distance of 100 meters, while car (B) covered a distance of 300 meters. Which of the two cars has a higher speed?

……..……..……..……..……..……

……..……..……..……..……..……

25- If one runner travels 10 kilometers in 1 hour and a second runner travels 10 kilometers in half hour. Which of the two runners has a higher speed?

……..……..……..……..……..……

……..……..……..……..……..……

Cross out the odd word:

1- Penguin – polar bear – arctic fox – fennec fox.

2- Cactus plant – palm tree – Barbary fig – pine tree.

3- Acacia tree – polar bear – pine tree – penguin.

4- Mouth – lungs – stomach – small intestine.

5- Nose – trachea – anus – air sacs.

6- Toads – panther chameleon – frogs – salamanders.

7- Panther chameleon – starred agama lizard – bull shark – arctic fox.

8- Smell – taste – eye – hearing.

9- Brain – spinal cord – nerves – stomach.

10- Sun – moon – flashlight – fire.

11- Moon – mirror – eye – candle.

12- Fishing cat – owl – dolphins – tarsier.

13- Wood – paper – metals – air.

14- Wood – glass – air – water.

15- Bats – humpback whales – honeybee – dolphins.

16- Bats – fireflies – dolphins – blind person's cane.

17- Sound energy – light energy – chemical energy – thermal energy.

18- Sound energy – light energy – electrical energy – thermal energy.

Best wishes
Dr/ Zeinab Salah

Final Revision for first term

Complete the following sentences using the following words:

(1) (spines – cool – hot – warm blood – darker – structural – cold blood – polar)

1-In penguins, blood vessels bring cold blood upward from the feet, but bring warm blood downward to the feet.
2-Starred agama lizards live in extreme hot weather.
3- Both of arctic fox and pine tree survive in polar habitat.
4-The cactus plant has spines that protect it from being eaten by desert animals, and this is a form of structural adaptation.
5-Animals that live in forests have fur darker than that of polar animals.
6-A burrow is an excellent place for fennec fox to stay cool during day.

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(2) (eyes – tongue – salt – structural – ears – behavioral)

1-The fat layer under the animal's skin to warm it is structural adaptation.
2-Some animals migrate at certain times of the year. This type of adaptation is called behavioral adaptation.
3-Mangroves trees grow in salt water.
4-Chameleons use their eyes to see the food, while foxes use their ears to hear noise of predators.
5-Long sticky tongue helps panther chameleon to hunt insects.

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(3) (Esophagus – teeth – acacia – respiratory – water – behavioral – fat)

1-Producing a poison by acacia tree to make a bad tasty leaves belongs to behavioral adaptation.
2-The trunk in acacia tree stores water as the hump in camel stores fat.
3-Esophagus is a tube with muscles that help push food into the stomach.
4-The two lungs are one of the important organs in the respiratory system.
5-Crushing the food in your mouth is the function of teeth.

(4) (nervous – sounds – structural – taste – echolocation – hair)

1-Sight and taste are the senses to distinguish between milk and water.

2-The common thing between bats and dolphins is the use of echolocation property through their sense of hearing.

3-The brain is part of your nervous system.

4-The presence of hair on jerboa's feet and toes help it catch sand, and this considered as structural adaptation.

5-The Egyptian mongoose makes sounds to send messages to other mongoose.

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(5) (sight – transparent – eye – rough – light)

1-The organ responsible for the sense of sight is the eye.

2-Both humans and animals need a source of light to see.

3-When light is reflected off a surface in different directions, so that surface is rough.

4-Lenses and glasses are considered transparent materials.

5-When watching a football game you use your senses of hearing and sight.

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(6) (moon – night vision goggles – Light – owl – sun)

1-The main source of light energy on the earth is the sun.

2-There are some similarities between owl and tarsier in structural adaptation of their eyes.

3-The moon is not a source of light.

4-Light energy affects sensory receptors in the eye, causing a vision.

5-Humans use the night vision goggles to see in the dark.

(7) (high pitched – smelly – sound – sight – echo – code)

1-The different languages are considered as code.

2-Dolphins and humpback whales are sea animals that use sound energy in their communication.

3-Both of honeybees and fireflies use the sense of sight to communicate.

4-The blind person's cane and bats emit high pitched sound that bounces off in the form of echo.

5-Both of acacia tree and ants use smelly messages to communicate.

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(8) (increases – balanced – Energy – gravity – unbalanced)

1-The force acting on body is unbalanced, so object move.

2-The force that pulls objects toward the center of Earth is gravity.

3-When the force acting on object increases the motion of the object increases.

4-Object doesn't move when balanced force acting on it.

5-Energy gives us a force that enables us to do work.

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(9) (elastic – thermal – Potential – light – electrical – Kinetic)

1-Potential energy is the amount of energy that is stored in an object due to its position.

2-Kinetic energy is the energy of an object due to its motion.

3-The energy stored in a compressed spring is elastic potential energy.

4-Electrical lamp operates with electrical energy that changes to thermal and light energy.

(10) (bigger – Airbag - increases - potential - more)

1-Fast cars cause damage more than slow cars.

2-In cricket game, the speed of the ball increases when the player hits it.

3-Airbag is a big pillow in cars to land against during a crash.

4- The truck has engine bigger than that of car.

5-In Newton's cradle the ball stores potential energy at the highest position.

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(11) (forward - increases – collision - decreases – kinetic)

1-When a car uses brakes to decrease its speed, its kinetic energy decreases.

2-By increasing the mass of the object the kinetic energy increases.

3-The moment where 2 objects hit in a forceful way is collision.

4-When the car stops suddenly driver's body continues to move forward.

5-Object has a big mass, has more kinetic energy.

Complete the following sentences:

1-(Forest - Polar) bears blend in with snow through their white fur.

2-Butterflies that have a color like the color of the tree they live on are called this phenomenon (migration – camouflage).

3-One of the adaptations that help the animal protect itself from enemies is (blend in – extinction).

4-Arctic fox has (white – brown) fur in winter, while it has (white – brown) fur in summer.

5-Camouflage in panther chameleon takes place through its brightly colorful (scales – fur).

7-Eyes of chameleon move independently of each other, this is considered as (structural – behavioral) adaptation.

8-Most of sharks can live in (salt - fresh) water only, but bull sharks lives in both water.

9-(Giraffe – deer) is the only animal that may eat acacia leaves.

10- Wide leaves that float above the surface of the water are considered as adaptations of (desert – wetland) plants to get large amount of (sunlight – water).
11- Adaptation to store water is an important trait for plants that live in (wetland – desert) environment.
12- Kapok tree has fluffy (brown – yellow) seeds.
13- (Taproot – Buttress root) is a very long root grows downward to search for water.
14- Leaves of palm tree are tiny like leaves of (pine – acacia) tree.
15-(Taproot – Buttress root) is a large wide root grows up to firmly hold the tree.
16-One of the structural adaptation of water lily plant is that it has (tiny – wide) leaves.
17-The mouth breaks up food mechanically by chewing in which (Teeth only - Teeth and tongue) mix and grind food.
18-Animal (digestive – respiratory) systems are adapted to the type of food an animal eats.
19-The system that digests food to produce energy is (digestive – respiratory) system.
20-Food passes from mouth to stomach through a narrow tube known as (small intestine – esophagus).
21-The diaphragm rises up during the (Inhalation - Exhalation) process.
22-Humans have (lungs- gills) and take in oxygen gas from (air – water).
23-Fish breathe (Oxygen - carbon dioxide) gas which dissolved in water by (lungs- gills).
24- (Breathing - pollution) causes many problems for the lungs.
25- Amphibians are (endangered – extinct) species.
26-(Amphibians – Fish) have two different ways for breathing.
27-You can identify food which is not good through the sense of (hearing – taste).
28-Bats use (light – sound) as a means of communication with each other.

29- The (brain – stomach) is the command center of your body that sends messages to different parts of body for reacting to danger quickly.
30- The nervous system is connected by (nerves – veins) that transmit messages around the body.
31- The skin is an important organ of the (respiratory - nervous) system.
32- Your sensation of hot weather depends on the sensory receptors in the (skin – nose).
33- (Bats – Owls) have the ability to turn the head in all directions.
34- (Veins – Nerves) carries the message from your eyes to your brain when you see something.
35- The sensory receptors convert sensory information to (nerve signals – waves) for sending it to the brain.
36- Jerboa jumps in (straight – zigzag) paths to run quickly from danger.
37- Hopping of the jerboa in zigzag pattern to run away from danger is considered as a (structural – behavioral) adaptation.
38- The long hind legs of jerboa are considered as a (structural – behavioral) adaptation.
39- Closing our eyes quickly when a flash light falls on them suddenly represent (reflex action – camouflage)
40- The time taken for the body to receive information from the environment (reflex action - response time)
41- If an animal eyes glow at night, this means its eyes must contain (lens - tapetum lucidum) that reflects light like a mirror.
42- I saw an eye shining in the dark, this animal could be (bat – cat)
43- Nocturnal animals that are adapted to see at night have (larger – smaller) eyes than the human eyes.
44- Paper and a piece of cloth are considered (smooth – rough) surfaces.
45- (Shiny smooth – Dark rough) materials regularly reflect light better.
46- When light is obscured by an opaque object (echo - Shadow) is formed.
47- (Reflection – Refraction) of light from objects is what lets the (brain – nerves) process and perceiving what our eyes see.

48- Changing the pattern of lighting up in fireflies beetles is an example of (structural – behavioral) adaptation.
49- Reading and writing are common types of communication in (animal – human) world
50- Honeybees use (flash light – movements) to communicate with each other.
51- The humpback whales sing a wide range of tones and a series of songs for (hide from enemies – communication).
52- Both humpback whales and Morse code can use (sound – light) energy to communicate.
53- Bees and humans are similar in communication through (sounds - movements).
54- In Morse code the (long – short) beeps known as dots, while (long – short) beeps known as dashes.
55- Traffic lights depend on the sense of sight in communication like (fireflies - dolphin).
56- The movements of scout honeybee represent a (code – camouflage).
57- From the organs that we can use to send or receive the code (heart – eyes).
58- The scout honeybee makes (1 – 3) round dance if the flower is very close.
59- The songs of Humpback whales have (high – low) pitched sounds in summer which is (mating – feeding) season.
60- The (scout ant – nurse ant) is the ant responsible for searching for food.
61- (Static – Moving) body doesn't move unless there's a (force – energy) acting on it.
62- When the position of a body changes according to a fixed point, the body (stops – moves).
63- (Energy – Force) is a push or pull that is applied to an object to change its (mass – position).
64- The moving object stop when it face another force that is (equal – unequal) in magnitude and in (opposite – same) direction.
65- Rope of tug war game moves toward the (greater – smaller) force when (balanced – unbalanced) force acting on it.

66- When we push a car gently, the car moves (slower – faster) and covers (short – long) distance.
67- (Energy – Work) is a force that causes an object to move a distance.
68- Opening a drawer is (push – pull) force, while kicking a ball is (push – pull) force.
69- The shockwave truck has been fitted with (2 – 3) jet engines to increase its (mass – speed).
70- When you sit on the chair without moving. What is the name of the force that pulls you downward? (friction – gravity)
71- The seesaw moves up and down because the forces that act on it are (balanced – unbalanced).
72- The friction force acts in (same – opposite) direction of the object's movement to (stop – move) it.
73- The shockwave truck installed with 3 (jet engines – parachutes) to stop it, and this is the same idea of stopping a moving (truck – rocket).
74- The motion of the car is opposed by the (gravity – friction) of the air.
75- At the top of ramp object stores (gravitational- chemical) potential energy.
76- When you hold a ball it stores (potential – kinetic) energy, but when you let it falls down to the ground the ball has (potential – kinetic) energy.
77- When a person pushes a car forward, his body begins to sweat heavily because his body (consumes - increases) his stored energy.
78- Light and sound energies belong to (potential – kinetic) energy.
79- In gas oven the natural gas stored (chemical – electrical) energy that changes to (sound – thermal) energy.
80- When the roller coaster slides down fast, its kinetic energy (decreases –increases).
81- The speed of roller coaster when it moves toward the top of the hill is (more – less) than that when it moves down the ramp.
82- As the height of an object from the earth's surface increases, its potential energy (decreases –increases).

83- Which formula can be used to calculate speed?
(distance/time – time/distance)

84- The speed is a measurement of how (long – fast) something is moving.

85- Object that move faster has more (potential – kinetic) energy.

86- When Malak travels with her bicycle a distance of 30 km in 2 hours, then she is moving at a speed of (20 km/hr. – 15 km/hr.).

87- A horse is faster than a human, as the human covers a (less – greater) distance at the same time.

88- (Kilometer – Meter) is a measuring unit for long distances.

89- If the acting forces on a moving body decrease, the speed of this body (decreases – increases).

90- As the angle of inclination increases the speed of object (increases – decreases) and its (potential – kinetic) energy increases.

91- The speed of objects differs according to their (mass – color).

92- Object moves a given distance in a shorter time is moving at a (greater – slower) speed.

93- Which of the following consumes less fuel? (a truck – a small car)

94- Car seat-belt is used to keep the driver from moving (forward – backward) during collision.

95- A train has kinetic energy (more than – less than) the car.

96- Kinetic energy is (lost – transferred) during collision.

Choose the correct answer:

1- How do adaptations affect the survival rate of a species?

a) Adaptations increase the survival rate of a species.

b) Adaptations decrease the survival rate of a species.

c) Adaptations change all the organism's structures.

d) Adaptations change all the organism's behaviors

2- Adaptations include changes that …….. in the environment.

a) reduce chances of survival

b) improve species survival

c) reduce life span for individuals

d) reduce reproduction process

3-Which would die if it didn't have the right adaptations for survivals in its environment

a)a rock b) a car c) a tree d) air

4-What happens to organisms that don't have the right adaptations for the conditions in their environment

a) the population increase b) the organisms die off

c) the population stays the same d) no changes occur

5-If the number of an animal species becomes zero, this mean that this species

a) becomes endangered b) becomes extinct

c) will survive d) going to be extinct

6-Antelope that live in wide open plains must adapt by using

a)thick fur to keep its body warm

b) long legs to help them run fast

c)bright color to help them attract the mate

d) hard outer shell to protect themselves

7-..... is the covering body of arctic fox.

a) heavy hair b) heavy skin c) thick fur d) thick feathers

8-Fennec fox has ……. to get rid of excess heat.

a) short ears b) long ears c) long tail d) tongue

9-An animal that has the ability to hide in the desert.

a) caracal b) fennec fox c) lizard d) all of them

10- Fennec fox and caracal have ……. that help them blend in with desert landscape.

a) colorful scales b) sandy colored feathers

c) sandy colored fur d) thick white fur.

11- When panther chameleon stands within leaves of trees, the colors of its scales changes into …… color.

a) white b) green c) blue d) black

12- The different colors of fur in different types of bears help them to

a) respire in their environment. b) adapt their habitat.

c) communicate with other animals. d) look for shade area.

13- Animals that live in a hot environment have ……. ears to allow heat to escape for cooling.

a) short b) long c) small d) sharp

14- The color of fur of arctic foxes changed according to season, this is considered as

a)Change of the way of breathing. b) Structural adaptation.

c) Behavioral adaptation. d) Change of the way of feeding.

15- The starred agama lizard keeps cool during a hot sunny day in desert by

a) eating green vegetables b) drinking more water

c) secreting more sweat d) finding a shade area

16- Which of the following sentences doesn't represent the camouflage adaptation

a) thick downy feathers of penguins

b) white fur of polar bears

c) colored scales of some lizards

d) sandy-colored fur of fennec foxes

17- Water lily has wide leaves to absorb a large amount of

a) Water b) sunlight c) nutrients d) fats

18- Desert plants are characterized by all the followings except that they

a) store water b) have wide leaves

c)have long roots d) have sharp spines

19- The roots of palm plants help them to

a) Stand strong against the wind

b) reach the underground water

c) Fixation of plants in the soil d) all the above

20- If a plant grows in a snowy habitat, so it needs all the following characteristics except …… to adapt.

a) short branches b) triangular shapes c) wide leaves d) needle leaves

21- If a plant grows in a rainforest, so it needs ……..…. to adapt for getting more sunlight.

a) small roots b) very tall trunk

c) sharp spines d) all previous answers

22- The two trees that can send smelly messages through the wind are

a)Kapok and water lily trees. b) Acacia and palm trees.

d) Acacia and kapok trees. d) Mangrove and pine trees.

23- All of the following properties protect acacia leaves from being eaten by animals except that

a) they are high enough b)they are brightly colored

c)they are guarded by sharp spines d) they produce poison

24- The needed energy to perform different functions of a living organism is obtained from

a)Breathing only. b) Food processing only.

c) Breathing and running. d) Food processing and breathing.

25- In the mouth teeth and tongue break down the food with the help of

a) Saliva b) Pancreatic juices c) Liver juices c) Stomach acids

26- Stomach is a part of the digestive system that

a) chewing food

b) converts solid food into liquid

c) absorbs nutrients from food.

d) delivers food into the esophagus.

27- All the following are similarities between human and fish respiratory system except

a)Both breathe in oxygen. b) Both have lungs.

c) Both breathe out carbon dioxide.

d) In both blood vessels carry oxygen to the body.

28- Fish extracts oxygen out of the water by

a) skin b) gills c) lungs d) fins

29- From the negative effects of human activities on the human health are

a) lung damage and asthma b) heart problems and wounds

c) lung damage and wounds d) asthma and wounds

30- To know if a cup of water is hot or cold we need to use the sense of

a) taste b) hearing c) touch d) smell

31- The sharpest sense that dolphins have is the sense of

a) taste b) hearing c) touch d) smell

32- To detect the place of a table in a completely dark room you need to use the sense of

a) taste b) hearing c) touch d) smell

33- Bat is ……. animal.

a) nocturnal b) morning c) harmful d) wingless

34- Owls have all the following properties to sense distant preys except

a) large eyes b) bowl-shaped face

c) head rotates in all directions d) weak sense of hearing

35- All of the following are components of the nervous system except

a) spinal cord b) lungs c) brain d) nerves

36- The two organs that make up the central nervous system are

a) the spinal cord and the brain. b) the nerves and the veins.

c) the veins and the brain.

d) the spinal cord and the backbone.

37- We close our eyes when a flash light falls on them suddenly. The two systems involved in this process are

a) Nervous and respiratory. b) Nervous and muscular.

c) Circulatory and muscular. d) Nervous and excretory.

38- Imagine that you touch a cube of ice with your finger. Where this message is processed and translated?

a) Finger b) Hand c) Brain d) Nerve

39- Which of the following is a source of light?

a) The moon b) The eyes c) Fire d) Mirror

40- Which statement best explains why you can see yourself in a mirror?

a) Light is reflected as it passes through the mirror.

b) Light is reflected, bounce off the mirror.

c) Light is refracted, bounce off the mirror.

d) Light is reflected as it absorbed by the mirror.

41- When light falls on a dark surface

a) the surface absorbs the light. b) the light is refracted.

c) light passes through it. d) nothing happens.

42-All the following have structural adaptation in their sense of sight so it is strong except

a) Owl b) Fishing cat c) Bat d) Panther chameleon

43-There is a tapetum lucidum in all of the following except

a) the horse b) the cat c) the human d) the deer

44-Night vision goggles look like …….. that present in nocturnal animals.

a) Pupils b) Nerves c) Tapetum lucidum d) Blood vessels

45-Which of the following allows the light pass through it?

a) moon b) wood c) glass window d) plastic

46-Painted surface …….. the incoming light rays.

a)Absorbs only b) Reflects only

c) Allows to pass d) Absorbs and reflects

47-Raise the thumb up or lower it down a kind of …….

a) colors b) codes c) lights d) waves

48- All the following are forms of codes, except

a) Faces expressions b) Writing

c) Colors of traffic light d) swimming

49-To communicate through the sense of sight we need

a) hearing music b) making sound

c) moving d) availability of light

50-You could determine how high music sound by

a) sound style b) sound frequency c) pitch of sound d) sound type

51-……. Can communicate by displaying light.

a)All animals b) All plants

c) All plants and animals d) Humans and some animals

52-Animals can communicate with each other through

a) sounds and lights b) talking c) reading d) writing

53-Humans can communicate using all the following except

a) sound b) light c) movements d) flying

54-Which of the following communications uses the sense of sight only?

a)Watching TV. b) Flashing light of fireflies.

c) Echolocation in dolphins. d) Using the cell phone.

55- Which of the following communications uses the sense of hearing only?

a) Rescue flare. b) Flashing light of fireflies.

c) Echolocation in bats. d) Using the cell phone.

56- When does the ball on the ground move?

a)It won't move. b) when a force acts on it.

c) when light falls on it. d) when gravity increase.

57- Which of the following indicate motion?

a) bicycle b) sunlight c)running water d) guitar string

58- When a body moves forward, the change that occurs is in ……..

a) the position of the body. b) the size of the body.

c) the mass of the body. d) the Earth's gravity.

59- Objects need a force to move, this force is called …….

a) pushing force only b) pulling force only

c) pushing and pulling together d) the gravity only

60- The body moves slow or fast or change its direction due to a ……..

acting on it.

a) force b) wind c) gravity d) height

61- All the following considered as force except……..

a) electric b) gravity c) push d) friction

62- When we push or bull a car, this need ……..

a) weight b) mass c) height d) energy

63- The force that makes the ball in the air fall down to the ground is

a) friction b) gravity c) push d) light

64- The force that occurs when objects rub against each other is ……..

a) speed b) friction c) gravity d) wind

65- All of the following are examples of pulling force except

a)open a drawer b) kicking a ball

c) lifting a bag d)gravity

66- All of the following are examples of pushing force except

a)close a drawer b) kicking a ball

c) lifting a bag d) press on electrical switch

67- When ball stands on the ground without moving, the forces acting on it
a) balanced b) unbalanced c) not equal d) pushing up

68- The amount of energy required to move an object through the force acting on is called
a) force b) work c) gravity d) pushing

69- When you clap your hands, kinetic energy of your hands becomes
a) sound energy only b) heat energy only.
c) sound energy and heat energy. d) chemical energy.

70- Which ball has kinetic energy but not potential energy?
a) a ball rolling down a ramp b) a ball sitting on a high shelf
c) a ball bouncing up and down d) a ball rolling on a flat sidewalk

71- Which type of energy change occurs when a person rides a bike?
a) heat energy changes to potential energy
b) chemical energy changes to kinetic energy
c) solar energy changes to chemical energy
d) kinetic energy changes to nuclear energy

72- Which of the following can store energy?
a) battery b) wire c) plastic d) rubber

73- The chemical energy stored in batteries is considered a form of …….
a) kinetic energy b) potential energy
c) electrical energy d) mechanical energy

74- Heat energy is a type of
a) kinetic energy b) potential energy
c) electrical energy d) chemical energy

75- Potential energy of an object depends on
a) its mass only b) its shape
c) its height from the earth's surface only
d) its mass and its height from the earth's surface

76- In …….. electrical energy changes into heat energy.
a) battery b) electric iron c) radio d) hand bell

77- When roller coaster stops its kinetic energy
a) increased b) decreased c) doesn't change d) becomes zero

78- The roller coaster has the most energy of motion when it
a) moves up to the top of hill b) moves down along the hill
c) stops at the top of hill d) stops at the bottom of hill

79- Scientists classify all forms of energy into 2 types which are
a) chemical energy and kinetic energy
b) potential energy and kinetic energy
c) potential energy and electrical energy
d) sound energy and light energy

80- Chemical energy can be stored in
a) food b) batteries d) fuel d) all the previous

81- How is speed measured?
a) distance traveled per unit of time
b) time per unit of distance traveled
c) mass per unit of distance traveled
d) volume per unit of mass

82- If a Car covered a distance of 10 meters in a time of 2 seconds, so the speed of the car is
a) 50m/sec. b) 20m/sec. c) 5m/sec. d) 2m/sec.

83- Gana is going down the slide. Her mother gives her a push. How does the push affect her motion down the slide?
a) The push decreases her speed.
b) The push increases her speed.
c) The push does not affect her speed.
d) The push stops her downward motion.

84- The amount of kinetic energy of an object increases as …….increases.
a) speed only b) mass only c) force only d) all the previous.

85- Which one of the following may cause the most damage?
a) A fast and heavy Vehicle. b) A slow and light Vehicle
c) A Big Vehicle. d) a and c

86- …… is (are) from the most important equipment during collision.
a) Brakes b) Car seat-belt c) Air bag d) b & c

87- Air bags are made of ..... material.
a) thin b)rubber c) nylon d) a and c
88- From the elements which cause danger while driving cars.
a) car tires b) seatbelts c) fast driving d) no correct answer
89- The collision between the bat and the ball results in .....
a) Kinetic Energy b) Sound Energy
c) electric energy d) a and b.
90- Fast objects cause ....
a) great damage that can be repaired.
b) great damage that can't be repaired.
c) small damage that can be repaired.
d) small damage that can't be repaired.
91- During collision, kinetic energy ..... .
a) transfers from the slow object to the fast object.
b) transfers from the fast object to the slow object.
c) is destroyed and lost in the air.
d) changes into potential energy.
92- The effect of collision depends on the ..... of the moving objects.
a) speed b) direction c) color d) a and b
93- The effect of collision increases by ..... the speed of the moving object.
a) increasing b) decreasing c) keeping d) no correct answer.
94- The collision between two moving objects produces ..... energy.
a) kinetic b) heat c) sound d) all the previous.
95- During the collision of moving bodies, ...
a) energy transfer occurs. b) energy changes occur.
c) damage occurs. d) all the previous.
96- The car with speed ..... has the highest kinetic energy.
a) 100 km/h b) 80 km/h c) 60 km/h d) 40 km/h
97- The kinetic energy of an object sliding on a ramp depends on the .....
a) angle of the ramp. b) mass of the object.
c) height of the ramp. d) all the previous.

98- In Newton's cradle the ball stores potential energy when ……

a) the ball is raised up. b) you leave the ball.

c) the ball hits the 1st other ball. d) no correct answer.

99- In Newton's cradle the potential energy is converted gradually to kinetic energy when ……

a) the ball is raised up. b) you leave the ball.

c) the ball hits the 1st other ball. d) no correct answer.

100- By increasing the mass of the object …….

a) The consuming fuel increases. b) the kinetic energy increases.

c) cause more damage during collision. d) all the previous.

101- What happens to the direction of the ball when hit with a bat?

a) Stay constant. b) Moves in the same direction.

c) Moves in a different direction. d) no correct answer.

Write the scientific term:

1-A habitat in which living organisms live. (ecosystem)

2-Is a change over generations that help organisms to survive and reproduce. (adaptation)

3-Change in the structure of the animal's body. (structural adaptation)

4-Change in the behaviors of a group of animals. (behavioral adaptation)

5-Death of living organisms because they can't adapt to the conditions of its environment. (extinction)

6-The animal that has an insulating layer of fat and thick downy feathers. (penguin)

7-A type of adaptation that helps an animal to hide. (Camouflage)

8-The animal that panting to lower its body temperature. (Fennec fox)

9-A feature in bull shark, in which the upper surface of its body is darker than its lower surface. (counter-shading)

10-A tree produces a poison to make the leaves taste very bad to defend itself. (acacia tree)

11-Liquid that moistens food in mouth to facilitate swallowing. (saliva)

12- The organ in which food is broken down into soupy liquid. (the stomach)
13- The organ that absorbs the food nutrients to move into the blood. (small intestine)
14- The organ that absorbs water from undigested food. (large intestine)
15- The organ through which solid wastes of digestion leave the body. (anus)
16- A gas presents in air and water and is very important for breathing process. (oxygen)
17- The property that depend on the sense of hearing through which dolphins locate their preys under water. (echolocation)
18- Animals that becomes active at night. (nocturnal animals)
19- The property related to the bouncing of sound waves back when the sound waves hit objects. (echolocation)
20- A flying mammal that use echolocation to locate its prey. (bat)
21- The main control center of the body. (the brain)
22- Part of the nervous system passes through the backbone, and carries messages from body to brain and vice versa. (spinal cord)
23- Small branches from the spinal cord that distributed throughout all parts of the body. (nerves)
24- A desert rodent with a small body, very large ears and small eyes. (jumping jerboa)
25- An animal that can escape from enemies because of the length of its hind leg. (jumping jerboa)
26- The time taken by jerboa to react to danger. (reaction time)
27- Messages that are so fast that you can't realize it. (reflex actions)
28- A membrane on the back of eyes of some nocturnal animals that helps them have excellent night vision. (tapetum lucidum)
29- Tiny monkey from mammals with length about 10 centimeters. (tarsier)
30- The visible form of energy. (light energy)
31- Anything that gives off its own light. (light source)
32- Objects that allow light to pass through. (transparent objects)
33- Objects that don't form shadows. (transparent objects)
34- Objects that don't allow light to pass through. (opaque objects)

35-Objects that form shadows. (opaque objects)
36-Information that is transformed into another representative form. (code)
37-Small winged beetles that use their wings to flash. (Fireflies beetles)
38-A pattern that has a meaning. (code)
39-A communication system that depends on sound or light energy and use dots and dashes to represent letters of alphabet. (Morse code)
40-The bees responsible for searching for food. (scout honeybee)
41-Ants sending smelly message when there is a shortage of food. (Nurse ants)
42-A simple tool used by blind people to walk safely. (blind people cane)
43-A change in the position of an object relative to a fixed point. (Motion)
44-The ability to do work or make a change. (Energy)
45-A force that moves an object away from you. (pushing force)
46-The force that tries to slow or stop an object moving on a surface. (friction force)
47-The form of energy that increases when the speed of an object increases. (kinetic energy)
48-A type of fuel that is used inside gas oven to obtain thermal energy. (natural gas)
49-A type of fuel that is used inside car to obtain kinetic energy. (gasoline)
50-The distance travelled in a certain amount of time. (speed)
51-A very heavy steel ball that helps knock down walls. (Wrecking ball)

Put (√) or (X) then correct the wrong:

1-Penguins have special blood vessels in their feet that help them survive in polar region. (√)
2-Penguins have no feathers on their feet. (√)
3-The feet of the penguin freeze in cold winter. (X)
4-Animals digging trenches is a form of structural adaptation. (X)
5-The white fur of the arctic fox helps it to blend in with snow. (√)
6-The bodies of fennec foxes, penguins, and caracals are adapted to live in extreme hot climate. (X)

7-The fur that some animals possess to protect them from the cold is a behavioral adaptation. (X)
8-Bull sharks have less competition for finding food in fresh water. (√)
9-Frogs are reptiles while panther chameleon is amphibians. (X)
10-Animals can't eat Barbary fig due to its sharp spines. (√)
11-Pine trees live in desert habitat and have needle leaves. (√)
12-Mangrove tree adapt to resist water waves by having long strong leaves. (X)
13-Kapok tree has hand shaped leaves. (√)
14-Acacia tree grow in Amazon forest. (X)
15-Plants need long roots that extend deep into the soil to survive in the water scarce. (√)
16- Plants have two types of adaptation structural and behavioral. (√)
17- All living organisms need food and oxygen gas to get energy. (√)
18- Food turns from complex to simple during digestion. (√)
19- Esophagus does not absorb food. (√)
20- No digestion takes place in the large intestine. (√)
21- Exhaled air is loaded with oxygen. (X)
22- The respiratory system is responsible for the entry of air into the body. (√)
23- Both salamander and fish can breathe through lungs. (X)
24- floods is one of the natural changes which cause severe damage to the agricultural field. (√)
25- Man cannot restore the ecosystem with any way. (X)
26- Nerves are constantly receiving information from the senses and sending them to the brain, even while a person is sleeping. (√)
27- The nervous system works separately from the five senses. (X)
28- Seeing with our eyes is a way to help us gather information about the environment around us. (√)
29- The ear is the sense organ responsible for seeing objects. (X)
30- Every part of the nervous system can work individually. (X)
31- Foxes have a strong sense of hearing and sight. (√)

32- The skin is the sensory organ that makes you feel the smooth of the cloth. (√)
33- Dolphins have a sharp sense of hearing and sight. (X)
34- The brain sends automatic signal so that we can breathe. (√)
35- Bats and snakes can see well in the dark. (X)
36- Your sensation of thunder and lightning depends on your senses of hearing and sight. (√)
37- The time taken by jerboa to react to danger is less than one second. (√)
38- The body can respond to more than one external stimulus at the same time. (√)
39- In a completely dark room, some light entering the eyes. (X)
40- Eyes of nocturnal animals are adapted to see in the total darkness. (X)
41- Some animals can see at night, such as a wild cat. (√)
42- You can see a green ball inside a transparent glass box. (√)
43- Wood is a transparent object that allows light to pass through it. (X)
44- Fishing cat and tarsier can detect very faint light levels. (√)
45- The tarsier feed on insects, small lizards, and birds. (√)
46- The Egyptian mongoose makes a group of sounds to communicate with other mongoose. (√)
47- Echolocation is a type of communication between owls. (X)
48- In order for the code to be translated, the brain must identify it. (√)
49- Red and green traffic lights are codes. (√)
50- Fireflies are wingless beetles. (X)
51- It is possible for human to interact with fireflies. (√)
52- Animals can use more than one sense to communicate with each other. (√)
53- When we push a car hardly, the car moves slower and covers long distance. (X)
54- The stopping object can't move until force acting on it. (√)
55- Force and energy are different but they are related to one another. (√)
56- When object moves upward the force acting on it is balanced. (X)
57- A force always causes movement. (X)

58- A force is a push or a pull. (√)
59- A static ball moves on the ground if it is affected by a force. (√)
60- The rotation of Earth around the sun is easy to be seen. (X)
61- The shockwave truck is one of the fastest and most powerful trucks in the world. (√)
62- If you move a chair through a distance, there is a work done. (√)
63- Human needs energy stored in food to do activities. (√)
64- Moving object has higher potential energy. (X)
65- In electric lamp the electrical energy changes to light and thermal energy. (√)
66- When you kick a ball, kinetic energy is produced. (√)
67- Existing energy can be destroyed or lost. (X)
68- In the electric fan, the kinetic energy is converted into electric energy.(X)
69- Energy can be stored in many different forms. (√)
70- Energy can't be changed from one form to another. (X)
71- The moving objects only have energy, while the objects that don't move have no energy. (X)
72- The faster the speed of an object, the shorter distance it can travel in a set time. (X)
73- Energy is neither destroyed nor created from nothing. (√)
74- The faster the speed of an object, the less amount of time it takes to travel a set distance. (√)
75- The speed of an object increases as the amount of time traveled increases. (X)
76- The speed of an object is affected by the direction of this moving object. (X)
77- The speed of an object is measured in (m/sec) and (km/hr). (√)
78- All objects move at similar speeds around us. (X)
79- If you want an object to go slower, you must reduce its kinetic energy.(√)
80- The more force applied to an object, the faster it goes. (√)
81- As the speed increases the potential energy increases. (X)
82- Objects has a big mass has less kinetic energy. (X)

83-Energy can be transformed easily from one form into another form. (√)
84- Light objects cause damage more than heavy objects. (X)
85-Kinetic Energy is transferred when two objects hit each other. (√)
86-Faster and heavier objects have more energy than slower lighter objects. (√)
87-The speed and kinetic energy of moving object on a ramp increased by decreasing the angle of the ramp. (X)
88-Slow moving object has less energy and causing less damage. (√)

Correct the underlined words:

1-Short ears of arctic fox belong to <u>behavioral</u> adaptation. (structural)
2-Panting in dogs and fennec fox belongs to <u>structural</u> adaptation. (behavioral)
3-Caracals have <u>colorful scales</u> to adapt their desert landscape. (tan-colored fur)
4-Camouflage in fennec foxes takes place through their <u>white</u> colored fur. (sandy)
5-Thick fur helps polar bear to stay <u>cool</u> in cold environment. (warm)
6-<u>White fur</u> helps bears to blend in with the trees while hunting. (Dark or brown fur)
7-<u>Fishing cat</u> is similar to fennec fox in having sandy-colored fur. (Caracal)
8-Bull sharks have less competition for finding food in <u>salt</u> water. (fresh)
9-Both of panther chameleon and kapok tree survive in <u>polar</u> habitat. (rainforest)
10- Both of fennec fox and palm tree survive in hot <u>forest</u> habitat. (desert)
11-In bull shark the lower surface of its body is <u>darker</u> than its upper surface. (lighter)
12-Lizards are from <u>mammals</u> that are ancient type of animals. (reptiles)
13- The body of some types of lizard is covered with colored <u>fur</u> to blend in with colored rocks. (scales)
14- Kapok tree sends delicious messages to attract <u>owls</u>. (bats)

15- Adaptation to store water is an important character for plants that live in rainforest habitat. (desert)
16- When running and making an effort, the number of breathing times decreases. (increases)
17- Snakes use their sense of hearing to find their prey. (heat)
18- Animals use their digestive system to sense and process information. (nervous)
19- The small intestine has tiny nerves to absorb the nutrients through its walls. (blood vessels)
20- Pancreas and liver secrete juices that flow into large intestine to break down food into nutrients. (small intestine)
21- Amphibians live in dry environment. (wet)
22- When you determine a sweet or bitter taste, you have used your eyes. (tongue)
23- Bats use their sense of smell to hunt and avoid obstacles. (hearing)
24- The Egyptian jerboa is one of desert reptiles. (rodents)
25- The brain responds to information sent by the sense of sight slower than information sent by the sense of hearing. (faster)
26- When you hear the fire alarm your eyes send a signal to the brain. (ears)
27- Nerves of nose and heart are connected directly to the brain. (eyes)
28- Wood and carton are considered transparent materials. (opaque)
29- The eye pupils of nocturnal animals are narrower than that of humans. (wider)
30- Owls and jerboa can't move their eyes in their sockets. (tarsier)
31- Light travels in zigzag lines in the form of light waves. (straight)
32- Things can't be seen through transparent objects. (opaque)
33- Fireflies produce a physical reaction inside their bodies that allows them to light up. (chemical)
34- Honeybees do a special dance by moving in a figure 6 pattern. (8)
35- Scout ants sending smelly message if there is a danger nearby to protect the colony. (Soldier)
36- Parked car is affected by unbalanced force. (balanced)

37- When you move object toward you this represents pushing force.(pulling)

38- There is a gravity force between the car tires and the road that acts to decrease its speed gradually. (friction)

39- Potential energy is the gained energy during the motion of objects. (kinetic)

40- Pushing a car is an example of potential energy. (kinetic)

41- Gasoline contains electrical potential energy. (chemical)

42- Electricity is a form of energy found in the food we eat. (chemical energy)

43- Damage will be less severe when two cars collide in the opposite direction. (same)

44- Heavy objects always have less kinetic energy. (Light)

Compare between:

Point of comparison	Inhalation	Exhalation
Diaphragm movement	Contract, and move downward	Relax , and move upward
Size of chest cavity	Increase	Decrease
The air rich in	Oxygen gas	Carbon dioxide gas

Choose from column (B) what suits it in column (A):

1)

Column (A)	Column (B)
1- A common organ in the digestive and respiratory system.	a) Carbon dioxide
2- The process of pushing air in and out of the body.	b) Respiration
3- Branches inside the lung that resemble tree branches	c) Pharynx (throat)
4- A gas produced by respiration.	d) Diaphragm
5- A muscle that has an important role in the breathing process.	e) Bronchioles

1	2	3	4	5
c	b	e	a	d

2)

Column (A)	Column (B)
1-Owl	a) Eyes glow to see at night.
2-Fishing cat	b) Use echo to locate preys under water.
3-Dolphin	c) The prey of the snake and hops to escape.
4-Bat	d) Have the same structure of eyes of owl.
5-Tarsier	e) The face shape collect and amplify different sounds.
6-Jerboa	f) Animal depends on body's sense of heat.
7-Snake	g) Sleep upside down and depend on echo of the sound to locate preys.

1	2	3	4	5	6	7
e	a	b	g	d	c	f

3)

Column (A)	Column (B)
1-The visible form of energy that is transmitted in the form of waves.	a) mirror- like membrane
2-A structural adaptation in the eye that provides some animals with better vision at night.	b) Light
3-When an object falls from your hands.	c) Smell
4-When a foreign object is brought into your eyes	d) Using the sense of sight
5-Ants use it to sense and communicate	e) The reflex action occurs.

1	2	3	4	5
b	a	d	e	c

4)

Column (A)	Column (B)
1-A way to communicate between some animals like bees.	a) Brain
2-Carry messages to the brain via the spinal cord.	b) Spinal cord
3-It is similar in its processing of information to a computer.	c) Nerves
4-Responsible for the transmission of commands through nerves to the muscles to contract.	d) Vibrating motion

1	2	3	4
d	c	a	b

5)

Column (A)	Column (B)
1-Used to knock down parts of a building.	a) Seatbelt
2-The air bag inflates automatically	b) after collision
3- Used in cars to keep body from moving forward.	c) sound energy
4- During collision, part of the kinetic energy changes into	d) Wrecking ball
5- The air bag deflates fast	e) during collision

1	2	3	4	5
d	e	a	c	b

Place the sentences in order of how the information is processed by the brain

2	Nerves in the body connect the sense organs to the brain.
1	Information from the environment is received by a sense organ.
4	The brain determines what to do with the information.
3	The signal travels as electrical impulses from the organ to the nerves in the brain

Give reason for the

1-Adaptation is an important trait of living organisms.

- **Because it helps them to survive and reproduce in the ecosystem.**

2-Some animals have the ability to make camouflage adaptation.

- **To hide from their predators and preys in different environments.**

3- Disappearance of some living organisms such as dinosaurs.

- **Because they can't adapt to changes in their environment.**

4- The penguin's body has an insulating layer of fat and thick downy feathers.

- **To trap warm air against skin.**

5- The polar bears (or arctic foxes) have thick fur.

- **To keep its body warm in the freezing cold.**

6-Forest bears have dark or brown fur.

- **To blend in with the trees while hunting (to make camouflage).**

7-Polar bears (or arctic foxes) have white fur.

- **To blend in with the snow while hunting (to make camouflage).**

8-Arctic fox has short ears and legs.

- **To help it stay warm.**

9-Fennec fox has extra-large ears. (Fennec fox pants like dogs)

- **To help it stay cool.**

10- Chameleons can move each of their eyes in a different direction.

- **To help it catch its prey and avoid predation by another animal.**

11- Panther chameleon has V-shaped feet and tail like a hand.

- **To hold tightly the branches of trees.**

12- Bull shark has sharp teeth.

- **To sneak up its preys.**

13- Bull sharks have less competition for finding food in fresh water.

- **Because there is no other sharks live in fresh water.**

14- Desert lizard looks for shade during hot sunny days.

- **To keep its body cool.**

15- The leaves of plants that float above the water surface are so wide.
- To get large amount of sunlight.

16- The shape of pine tree leaves is like a needle.
- To prevent losing of water.

17- Barbary fig has sharp spines.
- To prevent animals from eating its fruits.

18- Kapok tree has large wide roots that grow up on its trunk.
- To firmly hold the tree.

19- Kapok tree has hand-shaped leaves.
- To prevent tearing by wind.

20- Pine tree has a triangular shape and short branches.
- To prevent breaking by snow falls.

21- Saliva is very important in your mouth.
- It moistens food to facilitate swallowing.

22- The small intestine has tiny blood vessels.
- To absorb the nutrients through its walls.

23- Gills are unique structural adaptation in fish.
- Because they help fish absorb oxygen from water to breath.

24- Amphibians are endangered species.
- Because their number is decreased in the last few years.

25- Dogs are used in guarding.
- Because they have sharp sense of hearing and smell.

26- A dolphin can locate living organisms and things under the surface of the water.
- As it use echolocation property.

27- Bats cannot see in the dark, but they hunt their prey at night.
- Because it has sharp sense of hearing so can use echolocation.

28- Snakes depend on identifying their prey and catching them at night by sensing heat.
- As it can't see at night.

29- Owls can hunt during night.
- Because they have extra-ordinary senses of hearing and sight.

30- The jumping jerboa can jump for long distances.
- Because it has long hind legs.

31- Feet and toes of jerboa have hairs.
- To catch sand when jump in zigzag paths.

32- Some animals have a structural adaptation in their eyes.
- To help them see at night.

33- Some animals like cats have the ability to see in the dark.
- Because they have tapetum lucidum.

34- Moon is not a source of light.
- Because it reflects the sunlight.

35- You can see an object placed behind a glass cup.
- Because the glass cup is a transparent material that allow light to pass through.

36- Mirror reflects light better than painted surface.
- Because mirror is more smooth than painted surface.

37- You can't see an object placed behind a wood door.
- Because the wood door is opaque material that don't allow light to pass through.

38- Fireflies produce a chemical reaction inside their bodies.
- Because this allows them to light up to communicate.

39- Fireflies use flashing light to communicate.
- To warn off predators, or to attract a mate to reproduce.

40- Humpback whales sing different songs.
- To communicate with each other.

41- The songs of Humpback whales have high pitched sounds in winter.
- Because they travel better through cold water.

42- The hearing sense is very important for bats.
- Because they use sounds to communicate and to locate their preys.

43- If you push a ball on the table it moves for a distance till it stops.

- Due to friction force between the ball and the table.

44-The speed of roller coaster increases when it moves down the hill.

- Because its kinetic energy increases as it moves down the hill.

45-When a player kicks a ball it moves in air.

- Because the kinetic energy transfers from the player's foot to the ball.

46-When you hit a traffic sign post it may vibrate.

- Because kinetic energy is transferred from my body to the sign post.

47-Seatbelts are very important equipment in cars.

- To prevent body move forward

48-The truck causes more damage than cars during collision although they move at the same speed.

- Because the truck has big engine and more kinetic energy than cars.

What happens if……?

1- The polar bears have thin fur instead of thick fur.

- It can't adapt with the very cold weather.

2- Forest bears are coated with white fur.

- Cannot hide or hunt by camouflage.

3- Arctic fox has brown fur in winter, while it has white fur in summer.

- Cannot hide or hunt in winter or summer.

4- A plant is taken from its original habitat and placed in another different environment.

- It may die or may adapt with the new habitat to survive.

5- The small intestine is removed from the human body.

- The digestive system can't do its function.

6- Diaphragm moves downward during inhalation.

- The size of chest increases and oxygen gas enter to lungs.

7- Diaphragm moves upward during exhalation.

- The size of chest decreases and carbon dioxide gas comes out lungs.

8- Owl can't rotate its head in all direction.

- It can't search for food everywhere.

9- The structure of fishing cat's eyes is the same like human.

- Eyes can't glow and fishing cat can't see well at night.

10- Light falls on rough surface.

- Light will reflect in different directions (scattered).

11- A firefly wants to attract mates.

- It produces chemical reaction and lights up.

12- The amount of food in ants colony decreases.

- Nurse ants send smelly messages to scout ants.

13- The pulling forces of the two teams are equal in the tug-of-war game.

- The rope will not move.

14- If there were no energy on earth.

- Nothing would get done.

15- Increasing the mass of an object that moves down a ramp.
(according to the kinetic energy)

- The kinetic energy increases.

16- You turn on the T.V. (according to the change of energy).

- Electrical energy is converted into light and sound energy.

17- The roller coaster moves down the hill.
(according to the change of energy)

- Potential energy changed into kinetic energy.

18- You put a battery inside a flashlight then switch it on.
(according to the change of energy)

- Chemical energy is changed into light and thermal energies.

19- The speed of a moving car increases. (according to kinetic energy)

- Kinetic energy will increase.

20- You let the ball of Newton's cradle moves toward the rest of balls.
(according to the change of energy)

- Potential energy changed into kinetic energy.

Answer the following questions:

1- Rabbits have long and strong hind legs that help them to jump quickly and escape when danger determine the type of adaptation.

Solution:

structural adaptation: long and strong hind legs.

Behavioral adaptation: jump quickly and escape when danger.

2- The husky dogs live in a cold environment, while another type of dogs live in a hot environment. In your opinion, which one has thick fur? And why?

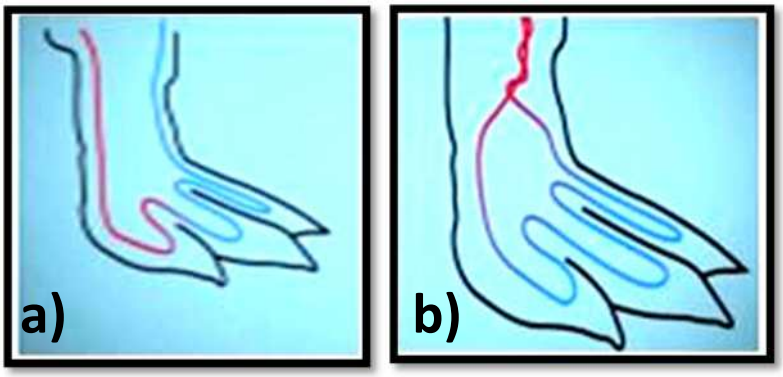
Solution:

- The husky dogs that live in a cold environment.
- The thick fur keeps their body warm.

3- Which figure shows the correct structure of blood vessels in the feet of penguins? Explain how do this adaptation help penguins survive in cold climate ?

Figure (b).

Because Blood vessels weave around each other to keep its toes from freezing.



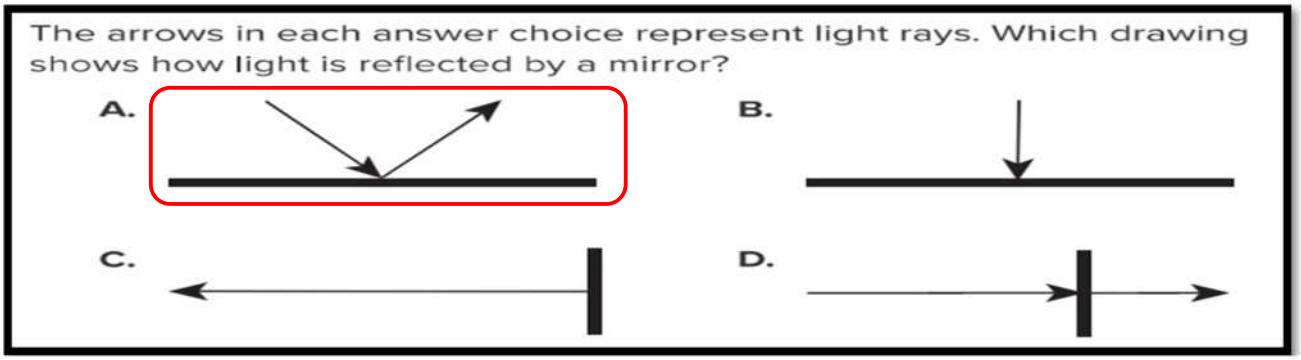
4-Mohamed drives his bike and while that he hears a car behind him, he turns away so as not to hit it. Which system inside the body received a signal made Mohamed realize that?

The nervous system

5-Adam hurt his toe when he climbed. How did he know that he had hurt his toe?

a) The nerves in his hurt toe sent a signal through his body to the brain.
b) The blood in his hurt toe sent a signal through his body to the brain.
c) Adam toes became very cold.
d) Adam toes became smaller.

6- choose the correct figure:

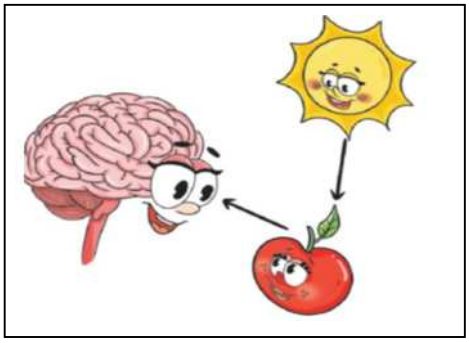


7- To see what was inside a box without having to open the box. What material should be used? (wood – mirror – transparent plastic – carton)

8- To prevent the light from entering your room, suggest some materials that you can use to cover the window.

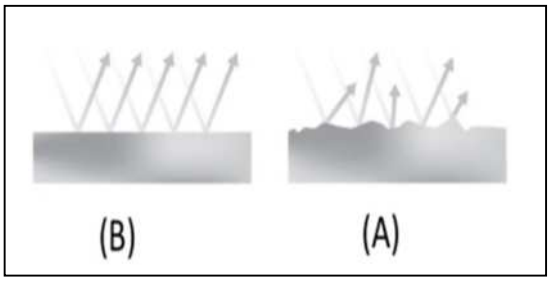
Solution: any opaque object like carton, wood, thick plastic.

9- look to the figure then complete:



The light falls on the apple then it is reflected on the eyes , so the eyes transmit the message to brain then he interprets it and translates it, so we see the apple.

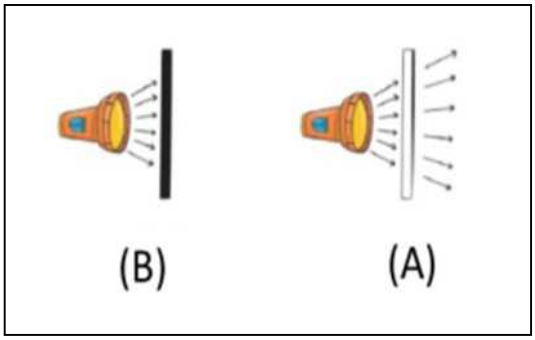
10- look to the figure then complete:



the surface represents the reflection of light rays from a wooden spoon is Surface A

Because it is a rough surface.

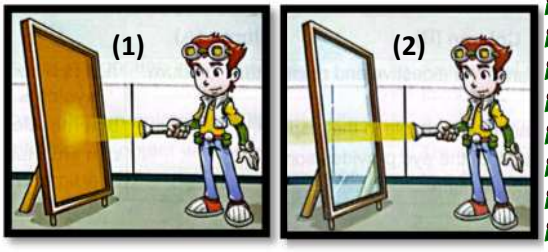
11- look to the figure then complete:



Object (A) is (transparent – opaque).

Object (B) is (transparent – opaque).

12-look to the figure then complete:



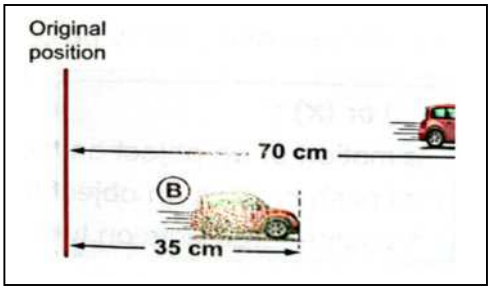
the figure represents a transparent object is Figure 2

the figure represents an opaque object is Figure 1

13- What is a common mean of communication between some animals and human?

➢ Using codes in form of sound, light, or movements.

14- Which of these 2 cars is affected by a greater Force? Explain why?

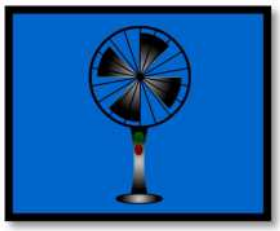


Car (A) because it moves longer distance than car (B)

15-In picture (1) energy is changed from electrical energy to sound energy.

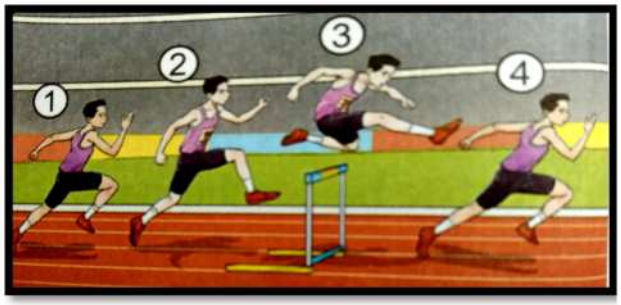
In picture (2) energy is changed from electrical energy to kinetic energy.

(1)



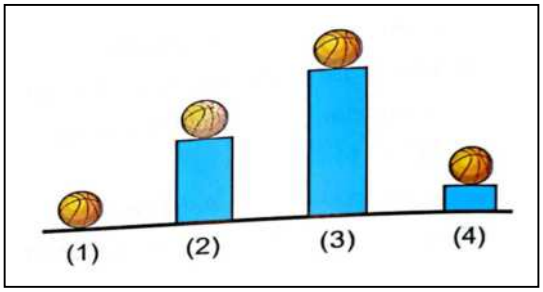
(2)

16- In the opposite picture position (3) represent the most (potential – kinetic) energy.



17- In the opposite figures which ball has the greatest potential energy? Explain why?

Ball number (3), because it has the greatest height.



18- In the opposite figure:

When the compressed spring is released, a change in energy occurs from elastic potential energy to kinetic energy.

19- From the following figure complete:

(different – wooden – bat – sound – ball – increases – kinetic)

a) The boy uses a wooden bat to hit the ball.

b) Kinetic energy is transferred from the bat to the ball.

c) When the boy hit the ball the speed of the ball increases in different direction.

d) During collision some of the kinetic energy changed into sound energy.

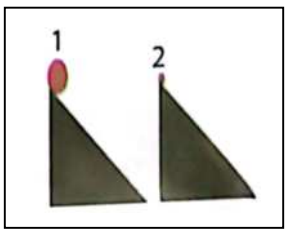
20- From the following figure that shows Newton's cradle complete:

a) When the ball is raised up, it stores potential energy.

b) When leaving the ball moves in the direction of the rest balls the potential energy decreases and kinetic energy increases.

c) During collision some of the kinetic energy changed into thermal energy due to the friction.

21- In the opposite figure which ball will reach the ground first? Explain why?



Ball number 1 will reach the ground first, because it has a big mass than ball number 2.

22- Calculate that speed of a runner that covers 150 meters in 10 seconds.
Speed = distance ÷ time = 150 ÷ 10 = 15 m/s

23- Calculate the speed of a train that covers 600 kilometers in a time of 6 hours.
Speed = distance ÷ time = 600 ÷ 6 = 100 km/hr.

24- If the two cars moved at the same time for 20 seconds, car (A) covered a distance of 100 meters, while car (B) covered a distance of 300 meters. Which of the two cars has a higher speed?
Car (B), because it travels longer distance than (A).

25- If one runner travels 10 kilometers in 1 hour and a second runner travels 10 kilometers in half hour. Which of the two runners has a higher speed?
The second runner, because it takes shorter time.

Cross out the odd word:

1- Penguin – polar bear – arctic fox – fennec fox.
2- Cactus plant – palm tree – Barbary fig – pine tree.
3- Acacia tree – polar bear – pine tree – penguin.
4- Mouth – lungs – stomach – small intestine.
5- Nose – trachea – anus – air sacs.
6- Toads – panther chameleon – frogs – salamanders.
7- Panther chameleon – starred agama lizard – bull shark – arctic fox.
8- Smell – taste – eye – hearing.
9- Brain – spinal cord – nerves – stomach.
10- Sun – moon – flashlight – fire.
11- Moon – mirror – eye – candle.
12- Fishing cat – owl – dolphins – tarsier.
13- Wood – paper – metals – air.
14- Wood – glass – air – water.
15- Bats – humpback whales – honeybee – dolphins.
16- Bats – fireflies – dolphins – blind person's cane.
17- Sound energy – light energy – chemical energy – thermal energy.
18- Sound energy – light energy – electrical energy – thermal energy.

Best wishes
Dr/ Zeinab Salah